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# APPRAISAL OF LEAGUE EFFORT

*By* GEORGE KENT

As Director of Public Information for the League of Nations Association in this country, Mr. Kent is eminently qualified to give this summing-up of the League's achievements in calendar reform during the past thirteen years. Through his long connection with the World Peace Foundation and other international organizations, he has been a frequent contributor to the periodical literature of League accomplishments.

IN THE YEAR 1923, calendar reform came before the League of Nations for the first time, a subject about which little was known, towards which the indifference was colossal—a subject nebulous, disorganized and completely lacking in leadership. Today, thirteen years after, we find it well established, a familiar of legislative and ecumenical councils, awaiting but the next session of the quadrennial international conference to enter the final or legislative phase.

Here is a subject on which the League has advanced steadily, consistently. Without a single backward step, it has moved inexorably forward these thirteen years through the successive stages of research, investigation, formulation of plans—surmounting each obstacle as it appeared, testing and eliminating faulty proposals, replying to criticism, satisfying legitimate regional demands.

The magnitude and significance of the League achievement can be

realized only when we understand that it has secured a general agreement on the basic principles of the problem of calendar reform, not only from the governments but also from the great world churches. In addition, it has encouraged the formation of unofficial agencies for study and for the education of public opinion in all the leading countries of the world; and finally, it has coordinated these efforts and kept them focussed on the desired goal.

The climax of League effort during the first eight years—1923 to 1931—arrived in 1931 with the sitting of a well-attended and deliberative international conference. Official delegates of forty-four nations gave their approval to progress already made and cleared the way in two carefully worded resolutions for the phase of legislation and enactment. But for an unfortunate and unavoidable circumstance this stage would have been reached by 1935.

The circumstance was the sudden death of M. Robert Haas, secretary of the League's Section on Communications and Transit, which melancholy event brought with it the decision to reorganize the Section and the quadrennial conference which lay in its domain. The conference had to be postponed, and indications today are that it will be held early in 1937.

The cause of calendar reform, however, has continued to move forward; it has been delayed perhaps by this readjustment of League machinery but the time has not been wasted. The program for the future as outlined by M. Haas will be carried forward by his successors. Drafting of an international treaty for the enactment of the proposed revision is the next step, and this will be taken during the next year, it is confidently anticipated; and after that, the signing of the treaty by the required number of nations will follow as speedily as advocates of the new calendar can stimulate action in the various world capitals.

The purpose of this article, however, is not to predict, but rather to set down an accurate record of the history of the activities of the League of Nations, as regards calendar reform, from 1923 to the present.

The subject came into the League program at the recommendation of several influential bodies—primarily, the Swiss government, the International Chamber of Commerce and the International Astronomical Union. In addition, there was pressure from England and other governments for action on the long-proposed stabilization of Easter, as an important factor in any program of calendar reform.

Prior to the World War, during the period from 1900 to 1914, there had been a widespread stirring of interest in the irregularities and inefficiencies of the Gregorian Calendar. At four important international conferences the subject had been taken up—first by the Eisenach Evangelical Conference of Churches in 1900, next by the London Congress of Chambers of Commerce in 1910; finally in 1914, by the Liege Industrial

Congress and the Paris Commercial Congress. The Swiss government, at the request of the two 1914 Congresses, had started a formal study of the subject, with a view to inviting international cooperation, when the World War broke out.

After the war, interest in calendar reform revived, and in 1919 the International Astronomical Union formed a special commission on the subject under Cardinal Mercier. In 1921 projects for a new calendar were again agitated by the International Chamber of Commerce.

Meanwhile the whole matter came before the League on the formal proposal of the Netherlands delegate in the Commission on Communications and Transit. In 1923, the League decided to set up a special committee on calendar reform under the Section on Communications and Transit.

The committee was composed of Professor Van Eysinga of Leyden, Chairman; Father Gianfranceschi, astronomer to the Vatican; Professor D. Eginitis of Athens; Professor T. E. R. Phillips, secretary of the Royal Astronomical Society; Professor M. G. Bigourdan of Paris and Willis H. Booth of New York.

The committee spent nearly two years studying the problem, seeking particularly to make clear the procedure which might best be followed, in order to obtain a joint result from the two important factors in the situation; viz., (1) the churches, (2) the governments.

Meanwhile, on November 1, 1923, Sir Eric Drummond, secretary-general of the League, addressed a letter to all governments, stressing "the great inconveniences caused in economic life and more especially in the transport trade, from the use of the present calendar," and inviting the governments to make an "advisory and preliminary" statement to the League for its guidance.

The reaction of the various governments to this request is interesting, as it forms the basis for the League's present position and for the strength of the calendar reform movement throughout the world.

ALBANIA: The proposed division of the year into 8 months being of 30 days and 4 of 31 days, is quite admissible.

AUSTRIA: Government favors fixing of Easter, but does not support general reform of the calendar.

BELGIUM: The Royal Academy agrees with the proposal for adoption of a perpetual calendar, divided into four periods of 91 days each.

BULGARIA: The scheme for the reform of the calendar, proposed by the Pan-Orthodox Commission, is being examined in Bulgaria.

CANADA: Regards with favor the idea of Easter fixation and correlation of days of week and month.

CHINA: Accepts report of International Astronomical Union, 1922.

DENMARK: Ministry of Commerce approves suggestions in principle.

ESTONIA: Easter should be fixed; 12-month year should be retained; year should consist of 52 weeks, plus one or two additional days.

FINLAND: Fixation of Easter approved; regarding perpetual calendar the Uni-

versity of Helsingfors observes that "there is not sufficient reason."

FRANCE: Office of longitudes suggests decision on perpetual calendar rests with "commerce, industry and agriculture." Director of Paris Observatory endorses perpetual calendar on basis of present Gregorian calendar, approves equal-quarter plan. Both authorities approve Easter stabilization.

GERMANY: Government recommends preservation of 12-month year in any revision of the calendar; is prepared to favor Easter stabilization.

GREAT BRITAIN: Government regards sympathetically proposals for a fixed Easter; it considers that the other proposals need the support of public opinion.

GREECE: Report inconclusive.

HUNGARY: Government accepts the proposals of the League experts as a basis for discussion, and will not refuse her adherence.

INDIA: Fixation of weekdays will fail to appeal to popular sentiment in India. Arguments for a fixed Easter have no repercussion in India.

ITALY: Replies received by the government from ministries and bureaus are in principle favorable to the proposal.

LATVIA: Government accepts unreservedly the draft proposals.

NETHERLANDS: Division of the year into 12 months should be retained; it would be advantageous to equalize the number of days in each month; no objection to Easter stabilization.

NORWAY: Director of government observatory recommends proposed equal-quarter calendar and Easter stabilization.

PORTUGAL: Government forwards opinion of Lisbon astronomers, that "efforts to improve the calendar should be of an absolutely universal character."

ROUMANIA: Orthodox Roumanian Church has no objection to proposed perpetual equal-quarter calendar.

SIAM: Government will favorably consider the proposals.

SOUTH AFRICA: The government astronomer approves a perpetual equal-quarter calendar.

SPAIN: Government forwards, without comment, favorable reports of various authorities.

SWEDEN: Government reports favorable reaction from Academy of Sciences.

While these government declarations were being received in 1924, clearing the ground for unimpeded official action by the League of Nations, a similar effort was under way with the great church bodies.

Reports were eventually received from the Vatican, the Eastern Orthodox Church, the Church of England, and various Protestant bodies, including the Federal Council of the United States. These reports varied in the degree of their advocacy of calendar reform and Easter stabilization, but they were a unit, at least, in establishing that nowhere was there any "dogmatic objection" to the League's proposals.

The League's efforts to keep the churches in step with the civil side of the movement toward a new calendar were signally successful, and a triumph in delicate diplomacy. At no point did governments seek to force the churches or to imply any jurisdiction over the ecclesiastical province. A hearty cooperation was the clearly-understood aim of every approach, and no opportunity was given for the development of those awkward jealousies regarding jurisdiction which have thwarted so many well-intentioned efforts at joint action between church and state.

From the Eastern Orthodox Church came the first overwhelmingly

enthusiastic support for calendar revision. As early as August, 1931, the official organ of the Oecumenical Patriarch in Constantinople published the official report of its delegate to the League conferences on calendar reform, approving the 12-month equal-quarter plan and the stabilization of Easter.

Eventually the other non-Roman churches reached the same decision, now embodied in the official findings of the Universal Christian Council, and in the warm approval of calendar reform voiced on behalf of the Church of England by the Archbishop of Canterbury in an official utterance before the House of Lords last April.

The attitude of the Vatican has at all times been one to encourage League leaders in their efforts toward a new calendar. "The subject of calendar reform is under constant consideration at the Vatican," says the significant report of the Cabrol Mission, sent to Rome in 1935. "The subject is viewed by the Vatican as a whole, and the question of Easter stabilization cannot be detached from the question of general reform. Before any action by the Holy See can be contemplated, unity should be established between advocates of differing methods of reform. Such agreement should have formal approval from leading governments. If such agreement is reached, and the nations present the Holy See with a request to examine the question, the request would be welcomed. The Vatican is in favor of a 12-month system and is averse to a 13-month year."

Progress made by the League of Nations since the international conference in 1931 has been largely conditioned by the necessity for gathering up all the odds and ends of official opinion and action, and for permitting the crystallization of public acceptance in many countries through the activities of non-official and semi-official promotional committees and organizations.

In 1935, the League official in charge of calendar reform, M. Robert Haas, visited America and conferred with representatives of The World Calendar Association regarding the quadrennial meeting of the Commission of Communications and Transit, which planned to take up an energetic re-consideration of calendar matters in the Spring of 1936. M. Haas' sudden death a few months later necessitated a postponement of the program which he had laid out, and the gap left by his departure will probably necessitate a realignment of the League program looking toward the enactment of the new calendar.

Students of international comity will continue to follow with the keenest interest the development of the calendar reform movement under League guidance, because it represents a fresh and encouraging instance of the ability of the nations to work together toward a common and advantageous end. It has a profound significance in the efforts of governments to act together; it will establish precedents which will eventually indicate the path toward world peace and unity.

# ORIGINS OF CHRISTMAS

*By* THE ABBÉ CHAUVE-BERTRAND

A few months ago there appeared in Paris a 256-page book on the subject of calendar reform, under the title "La Question de Paques et du Calendrier." The author, Abbé Chauve-Bertrand of Nevers, has been a student of the subject for more than a quarter century. He was the secretary of the Commission on Calendar Reform of the International Astronomical Union, whose report became the basis on which the League of Nations first took up the subject of calendar revision. The Abbé, long a lavish contributor to the scholarly literature of his church, has written for this issue of the Journal a charming and delightful study of the origins of Christmas.

THE FEAST of the Nativity of the Savior has not existed from the beginning of the Christian era. It was only in the fourth century, or the end of the third, that it appeared at Rome. When it took root there, nobody was in a position to prove that the event had taken place on the 25th of December. Mgr. Duchesne, in *Les Origines du Culte Chrétien* declares that "there is no tradition concerning the date of the birth of Christ." Surprising as the fact may be, it is indisputable, whatever one may say about it. Why, then, has the Roman Church placed the anniversary on this day?

Duchesne thinks that the date of the birth of Christ was arrived at by reckoning from the date believed to have been that of His death. Many Churches in the first centuries, discouraged by the difficulties of calculating the date of Easter in the complicated and uncertain processes of those days, chose the symbolic date of March 25th to commemorate Christ's death, and that of March 27th for His Resurrection. With the former date as a point of departure, and on the supposition that Christ passed an even number of years on earth (since fractions were an imperfection to be eliminated)—Christ's conception was also set down at the spring equinox. And thus, after the nine months of pregnancy, Christ's birth would have taken place on the 25th of December.

Such is the reasoning developed by Mgr. Duchesne, who adds, nevertheless, that the argument would be more valuable if it could be substantiated in some ancient document. Unfortunately it cannot.

The Abbé Vacandard, in his *Etudes de Critique et D'Histoire Religieuse,* would not admit this explanation whereby the 25th of March would have governed the 25th of December; and it is, indeed, hardly reasonable, considering that the feast of March 25th (Incarnation or Conception) is much later in origin than that of December 25th. "With reason," says Dom Leclerg, the learned collaborator of Dom Cabrol, in the *Dictionnaire D'Archeologie Chrétienne, CXXXI, 908,* "Vacandard maintains that the

25th of December governed the 25th of March." Once more, then, why has the Church chosen the 25th of December?

In all probability, this date was chosen because it was the day of the winter solstice (the 25th exactly, according to the Roman calendar of that time)—a day when the pagan cults at Rome, in Egypt, in Persia and elsewhere celebrated the rebirth of the sun—the feast of the *Natalis Invicti.* The *Invictus* was Mithra, who personified the sun. It is believed that in the third and fourth centuries, when this cult of Mithra had spread very widely, the Church sought to oppose Christ, the spiritual Sun, to the pagan sun god. One finds in the Apologists and the Fathers of that epoch expressions which show such a thought. The Prophets had designated the Messiah as the "Sun of Justice": *Orietur Vobis Sol Justitiae.* When Simon received the Savior in the Temple, he greeted Him as the Light which was to enlighten the nations: *Lumen ad Revelationem Gentium.* Saint Cyprian calls Christ "The True Sun," and Saint Ambrose cries: "This is our *New Sun,*" etc. This metaphorical language was quite frequent in those days. However, the eloquence of the preachers was not enough. Much more effective was the practise of counteracting the pagan ceremony with a Christian solemnity in which was celebrated the birth of the One who was presented as the true Sun. All this is very well explained by Dom Botte, in *Les Origines de la Noël et de L'Epiphanie.*

There is more. The scholarly study of Dom Botte brings to mind that our Christmas crib surrounded by lights and approached with reverence on Christmas Eve, is not without resemblance to a pagan ceremony. According to the testimony of Macrobius and of Saint Epiphanius, the Arabs of Petra, the inhabitants of the Valley of Elousa in Idumea, and certain others in Egypt, had the custom of taking from a sanctuary, at the time of the winter solstice, an idol of the sun, represented as a new born child, whilst the priests went along in a sort of nocturnal procession and chanted the following: "Korah, the Virgin, has given birth to Aion." *Aion* was the new sun. As to the Virgin "There is no doubt," says Dom Leclerg in the *Nativite de Jesus,* "that the *Parthenos* who was the mother of Helios by this astral mythology, is the *Virgo Celestis,* the fertile virgin."

To get to the bottom of this explanation, it remains to be said who this celestial virgin was. She was simply the one whose name figures in the signs of the Zodiac. We know that the sun, in its apparent annual movement, describes on the celestial sphere, a line called an ecliptic—so named because the eclipses are produced on this line. Now, to indicate the place in this region of the sky where the sun was at a given moment of the year, the first astronomers, Egyptian and Chaldean, divided the ecliptic into 12 equal parts and gave the stars which were in each of these parts, names which were chiefly those of animals, from whence the word Zodiac, from *Dzõdia,* animals. These names originated from the most strik-

ing phenomena of nature and of the earth present at the time that the sun was in each of these 12 parts. Thus they called that part of the stars in which the sun was found at the time when the lambs were born, *Aries,* or sign of the Ram, or stars of the Ram; stars of the Bull or of *Taurus,* were those under which it was time to put these animals to the plow to till the earth; stars of *Aquarius,* those of the period of rain and the floods of the Nile; stars of *Cancer,* or of the Crab, those under which the sun, having arrived at the middle of its course, began to go back like the crab who walks backwards; stars of *Virgo,* or the Harvest Virgin, those under which young girls were seen in the fields cutting the grain or reaping. And thus, on charts of the Zodiac, the ancient astrologers represent the Harvest Virgin, sometimes as governing the family, and sometimes as holding grain in one hand and a branch laden with fruit in the other. Now, after the harvest season, the stars of the Virgo Constellation descended slowly. When they disappeared on the horizon, the sun, at the winter solstice, was placed as though in the bosom and was born, so to say, in the arms of the celestial virgin at the heliacal rising on the eastern horizon; it was he who, in this guise, was represented as a child nursed by a chaste virgin, in the astrological pictures of the wise men of Persia.

Let no one be frightened by all this. It is a delight to be able to go back, when possible, to the origins—to follow historical developments and distinguish their outlines: To proceed from the astronomical sun to the spiritual Sun, from the Zodiacal virgin to the Crèche of the infant, from the ancient New Year's gifts to our Christmas Trees. We do not realize fully how much the liturgies owe to astronomy. Pius XI, inaugurating this year the observatory at Castelgandolfo, made an allusion to this in speaking of the "connection which exists between religion and the science of the stars." The date of the winter solstice is naturally indicated to be the time of a great feast. The ancient cults anticipated it. Instead of throwing out the sparks of truth that they possessed, it seems better to gather in everything, and, following the example of the Church in the first centuries to emulate the bee, which collects from all the flowers and distills from them a glowing ambrosia. Concerning the feast of Christmas, the pagan influence cannot be denied; only, the sun, object of the pagan cult, is now but a symbol of Christ for the Christians. One is the pedestal of the other. The lovely feast of Christmas is therefore the day of the rebirth of the sun at the winter solstice and, at the same time, the day when the Church celebrates the birth of Jesus, Sun of Justice, Word made man, with whose birth it is fitting to associate the birth of all men, and thus to have the feast of the Infant-God and the feast of all human infants at the same time. For without the births of the latter, humanity would perish, as the world would perish without the rebirth of the sun at the end of each year.

# COMES THE NEW YEAR

*By* Mary Porter Russell

(*From the Cleveland News*)

EVERY New Year's Day, the houses of the land are filled with new calendars. By the millions they come into use, bright and new, large and small. We study them quizzically for a moment before we place them on our desk or hang them at our bedside or above the kitchen sink.

We study them for a moment, and run our hands over the unborn days. For the calendar refuses to be regarded as merely a tabulation; it is time made tangible, it is a portion of our lifetime, measured, definite, awakening hope and awakening fear, arousing us from our lethargy.

The calendar has become so essential to us it is difficult to realize that man lived long years upon the earth with no means of making note of the seasons or of counting the passing days. The length of the year was too big a thing for the mind of primitive man to comprehend. He was amazed and bewildered by the myriad of ever-shifting stars, by the apparently varying speeds of the sun-god in traveling from east to west. He was baffled, too, by the mysterious phases of the moon; and the coming of the harsh seasons was a fearful thing, brought by wrath of gods or chance.

But eventually man began his crude attempts to measure time. The evolution of our calendar from those early beginnings to the present day is filled with inconsistencies, and haloed with romance.

The variation of the length of years has been extremely wide. The first "year" consisted of the period of time in which each moon waxed and waned, for the moon was more easily studied than the sun or stars.

Years of one moon or month grew tedious in time, and five moons (the number that could be counted on one hand) became the established year. Later the year was increased in length from five moons to six, from six to 10, and finally to 12. These moon months consisted usually of 30 days, and the days were counted off by the use of bundles of sticks. Each morning one stick was drawn from the bundle until the days that were to be became days that had vanished into the past. It was not until the Egyptians learned something of the relationship of the earth and the sun, and began measuring the shadows of their huge pyramids, that the true length of the year was discovered as being 365.242 days. Even after this discovery the Egyptians retained their 12 months of 30 days each, and used the extra days as festival days to be celebrated at the end of the year.

It is easy to trace the increasing lengths of the years through the diminishing ages of Biblical characters. Methuselah, that grand old man who is said to have lived 969 years, was, in reality, only 79 years old when

he died, for he lived in the era of single moon counts. Adam, if we subject him to the indignity of measuring his life by full-length years, spent 75 years upon earth instead of 930. Noah 77, instead of 950. Abraham and Isaac belonged to the era of five-month years, and so lived not 175 and 180 years, but 72 and 74. Jacob, coming in the six-month period, lived only 73 of the 147 years with which he is accredited.

During their sojourn in Egypt the Israelites learned the true length of the year, but while there they held tenaciously to their forefathers' six-month year. After the exodus from Egypt, however, the ages of men recorded in the Bible are within the normal range of lives.

The Egyptians and the Israelites kept their precious information to themselves, and the scattered nations and tribes of Europe used notched sticks to tally five, six and 10-moon years until Numa, the Roman king during the seventh century before Christ, added the months of January and February to make 12, alternating 29 and 30 days to each moon. Even with the addition of these two months, however, the year consisted of only 354 days, and the calendar had come into hopeless confusion by the time of Julius Caesar.

Many persons are of the opinion that Caesar originated the calendar which came to bear his name, and which, in modified form, is now in almost universal use. The fact is, however, that he adopted it from the Egyptians after conquering Egypt in 46 B. C. It seemed obvious that the ever-wandering moon calendar could never be made satisfactory, and Caesar was delighted with the advantages the sun calendar offered. Only one difficulty worried him: the Egyptians used 12 equal months of 30 days each. Twelve months of even numbers of days could not be tolerated, he insisted. Was it not odd numbers that were lucky?

The outcome was that the Egyptian calendar was adopted with one important change; namely, the five extra days (six in leap year), which the Egyptians had celebrated as festival days, were distributed throughout the year, and since it was desired that every alternate month be made 31 days long, one day was subtracted from February, leaving that month with only 29 days. The months were divided into Kalends, Nones and Ides. The Kalends were the first of every month, the Nones and Ides were the seventh and fifteenth of March, May, July and October. In other months the Nones were the fifth, Ides the thirteenth. Dates were reckoned backward.

The days of the months were juggled about still further after Julius Caesar was assassinated in 44 B. C. His successor, Augustus Caesar, consumed by a desire to equal in importance his distinguished uncle, demanded that there be as many days in the month of his birth (August) as in the birth month of Julius (July). The twenty-ninth day of February therefore was taken away and added to August. To avoid having three successive months of 31 days each, the thirty-first days of September and

November were given to October and December. "Thirty days hath September," said Augustus, and 30 days it continues to have.

Another idiosyncrasy of the Julian calendar which has come down to us through the centuries is the date of the beginning of the year. Caesar planned to begin his year with the winter solstice, Dec. 22. At this time the sun has reached its farthest position south of the equator, and begins to return, with promise of new warmth, to northern latitudes. Since prehistoric times, men have made this event an occasion for celebration and rejoicing. From the standpoint of both logic and sentiment, it would seem the proper day to herald the new year. But the people of Rome were grounded in the belief that the new year must begin with a new moon, and Caesar thought it expedient to accede. Jan. 1, therefore, was placed on the first day on which the new moon appeared after the winter solstice.

Only two important changes have been made in the Julian calendar since its adoption in 46 B. C. The first was the recognition of the seven-day week as an official division of time. This was brought about by Emperor Constantine's edict of 325 A. D., which sanctioned the Christian Sunday as a day of rest, and authorized the use of seven pagan names—the ones still in use—to designate the seven days of the Christian week.

The second change occurred more than twelve hundred years later, when it was decided that a defect in the leap year rule must be remedied. Caesar had based his calendar on a 365.25-day year, and had ordained that there be an extra day added to February every fourth year to rectify the irregularity. But in reality there are only 365.242 days in the year, and the observance of leap year every four years caused the calendar gradually to fall behind the sun. The discrepancy was too slight to be noticed at first, but by 1582 A. D. the calendar year was 10 days out of place. Pope Gregory XIII, upon the advice of prominent astronomers, dropped these 10 days from the calendar and established a new leap-year rule that three century leap years in each 400 years must be non-leap years.

The Gregorian calendar was adopted by all Catholic countries in 1582. Protestant Germany did not accept it until 1700; and Great Britain, with all her colonies, including the United States, refused to acknowledge it until 1752. Since a leap year was skipped, under the Gregorian calendar, in 1700, it was necessary for Great Britain to drop eleven days instead of the ten days cancelled by Pope Gregory. These eleven days were dropped between Sept. 2 and Sept. 14. It is because of this calendar change that George Washington's birthday is celebrated on Feb. 22. According to the Washington family Bible, he was born on "Ye 11th day of February."

For many years after the reform of 1752, dates were referred to as "old style" and "new style," and one can surmise that considerable confusion existed. But finally the confusion passed away, and people ceased to remember that there had ever been other than "new style" dates.

A movement has been under way since the early days of the present century to make further and more drastic changes in our calendar so that its faults may be minimized. Out of the several hundred plans formulated to this end, two have received prolonged consideration. One of these calls for a division of our days into a 13-month year; the other provides for a rectifying of the present 12-month calendar, with four equal seasons.

Absolute simplicity is, of course, unattainable because day and year, week and year, lunar month and year, are incommensurable periods of time. Proponents of reform, however, are strong in their conviction that we should correct our calendar's most obvious faults and should seek to bring it as near as possible to perfection and simplicity.

Both the 13-month and equal-quarters plans of revision call for the fixity of our calendar by the intercalation of a year day every year and a leap day every four years, year day to be added at the end of December and leap day at the end of June. These days would belong to no week and, therefore, would not interfere with the permanent relation of weekdays to specific dates. The assortment of days in any month would be exactly the same as in the same month of the preceding year. Calendars would be made of durable materials, and there would be no hanging of fresh, new ones each year as in the quaint and inefficient past.

Both the 13-month and equal-quarters calendars would change many of our holidays to the Mondays preceding their present dates, so that extended week-ends might be enjoyed; and Easter Sunday, which now wanders from March 22 to April 25, would be fixed at some certain date, probably early in April.

There are religious sects which object sincerely and conscientiously to any calendar change. Against these stand many who would welcome the change personally on the ground of efficiency and, with them, a group of crusaders who see in the reform a genuine boon to all mankind, and who believe that we should tolerate willingly the inconveniences of its introduction for the sake of the generations to come.

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## RESOLUTIONS FOR THE WORLD CALENDAR

DURING the past two months, resolutions in favor of calendar reform have been passed by three organizations whose approval carries considerable weight in their respective fields of activity. The Ninth Scientific Congress of Chile approved and endorsed The World Calendar "because of its simplicity and obvious advantages." The South Carolina Academy of Science urged endorsement of The World Calendar by the United States Government. The Institute of Radio Engineers petitioned the U. S. Government to support The World Calendar in international activity toward calendar revision. Other resolutions in favor of The World Calendar were passed by the National Association of Education of Chile, and by the American Lutheran Church.

# THE CALENDAR AND THE SEASONS

*By* H. W. BEARCE

*U. S. Bureau of Standards*

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IT HAS been suggested that if and when a revised calendar is adopted it would be well, in addition to making the calendar perpetual, to change the time of beginning of the year so that it would coincide with the winter solstice, which occurs on or near December 22nd under our present calendar.

It is assumed by those who advocate a change in the time of beginning of the year, that by such a change the four quarters of the calendar year could be made to coincide with the four seasons. Under such a plan, January, February and March would be designated as winter; April, May and June, as spring; July, August and September, as summer; and October, November and December, as autumn.

At first thought this plan might appear to be feasible and a desirable addition to the simplification of the calendar. Further study, however, reveals the fact that it is not feasible.

It must be remembered that the seasons are regulated by the relative positions of the earth and the sun, and that while we can adjust and regulate the lengths of the months and the quarters, we cannot regulate the lengths of the seasons; since the seasons are of unequal length. The only way we can make the quarters and the seasons coincide, is to make the quarters of unequal length—the very thing, or one of several things, that calendar revision is designed to avoid.

If, then, we cannot make the seasons and the quarters agree, without having quarters of unequal length, and if the only purpose to be served by moving the beginning of the calendar year to the winter solstice, is to make the seasons and the quarters agree, we might well conclude that it would be best to leave the beginning of the year where it is at present; that is, some 10 or 11 days after the winter solstice.

In support of the above conclusion there are given below a few simple astronomical facts which have an important bearing on the case. These facts are derived from the dates of the solstices and equinoxes over a series of years, as furnished by the U. S. Naval Observatory.*

| | *Spring* | *Summer* | *Autumn* | *Winter* |
|---|---|---|---|---|
| 1940 | | | | Dec. 21....23.9 |
| 1941 | Mar. 21.... 0.4 | June 21....19.6 | Sept. 23....10.6 | " 22.... 5.8 |
| 1942 | " 21.... 6.2 | " 22.... 1.3 | " 23....16.3 | " 22....11.7 |
| 1943 | " 21....12.1 | " 22.... 7.2 | " 23....22.2 | " 22....17.5 |
| 1944 | " 20....17.8 | " 21....13.0 | " 23.... 4.0 | " 21....23.3 |
| 1945 | " 20....23.6 | " 21....18.9 | " 23.... 9.8 | |

(Greenwich Civil Time)

*cf. "Kalendar und Chronolog. Tafeln," Dr. Robert Schram, Vienna (1908, Liepzig).

From the above table of dates (day and hour), on which the sun reaches the solstices and equinoxes, it is found that the seasons have the following lengths: Winter, 89 days, 0.4 hour; spring, 92 days, 19.1 hours; summer, 93 days, 15.0 hours; autumn, 89 days, 19.3 hours. These figures are not exact, but are believed to be correct to the decimal place given; that is, to 0.1 hour, or 6 minutes.

Because of the shape of the earth's orbit, and the variable speed of the earth in its yearly journey around the sun, the seasons are of unequal length. That is, the time difference between successive arrivals of the sun at winter solstice, vernal equinox, summer solstice, autumnal equinox, and again at winter solstice, is not constant, but varies from 89 days, 0.4 hour between winter solstice and vernal equinox, to 93 days, 15.0 hours between summer solstice and autumnal equinox. The seasons, therefore, as governed by the apparent position of the sun, do not lend themselves well to use as subdivisions of the calendar year.

It is seen from the table how the year's excess over 365 days, i.e., 5.8 hours approximately, accumulates through 1941, 1942 and 1943, and then, in 1944, how the accumulated error is corrected in leap year.

If a new calendar so revised as to make January 1 coincide with the date of the winter solstice and at the same time fall on Sunday, were to be put into effect, it would, of course, be necessary, in order to avoid interruption of the regular succession of the days of the week, to select a year in which the winter solstice falls on Sunday. It would be desirable also to select a year in which the sun reaches winter solstice at or near midnight on the morning of the first day of the new calendar, in order that the seasons and the calendar might start out "in step."

The desired combination of dates and days of the week will occur in December, 1940, when the sun reaches winter solstice at 11:54 Saturday, December 21. Thus, if, the new calendar were to be put into effect at midnight on the morning of Sunday, December 22, 1940, this date being changed to January 1st, 1941, the beginning of the calendar year and the beginning of the winter season would be in coincidence within about six minutes. They would not, however, remain so closely in coincidence for long, because of the fact that the tropical year does not contain an integral number of days and in addition, are of unequal length.

From the astronomical facts as above set forth it is evident that equal quarters cannot be made to coincide with seasons of unequal length. In view of this fact it is further evident that there is little, if anything, to be gained by making the beginning of the calendar year coincide with the winter solstice. Therefore, it would seem wise to leave January 1st where it is, and to devote our efforts to the perfection and adoption of a perpetual calendar, having equal quarters, such as that advocated by The World Calendar Association.

# "STAR OF PERFECTION"

*By* Claude Bragdon

The author derived the phrase, "The Star of Perfection," together with certain of the ideas contained in this article from "The Kaballa, or Mystic Figure of the Egyptians," a remarkable work by George Henry Felt, written in the early part of the Nineteenth Century, unearthed by Viola Louise de Gruchey and placed in the hands of the present author.

REASONS for the adoption of The World Calendar are so numerous and convincing compared with those advanced in favor of any other—particularly the 13-month calendar—that little more can or need be said about it. There is one aspect of the matter, however, which has not been given sufficient importance from the standpoint of the philosopher, the artist, and the geometrician, to all of whom The World Calendar should particularly commend itself. This view I shall attempt here briefly to present. It has to do with the significance, symbolism, and peculiar properties of the number twelve.

If we are dealing with problems in solid geometry, the circle would represent a sphere or ball *(Fig. 1)*, and its geometrical plane equivalent would be represented by the regular dodecahedron, bounded by twelve pentagons *(Fig. 2)*. The corresponding pentagons on the back of the dodecahedron are represented by dotted lines. This the Deity, according to Plato, employed in tracing the plan of the Universe. It was regarded as the equivalent of the sphere, both being thought of as absolutely perfect figures.

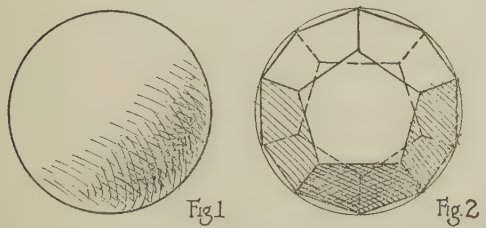


Fig. 1 Fig. 2

I. THE SPHERE & THE DODECAHEDRON

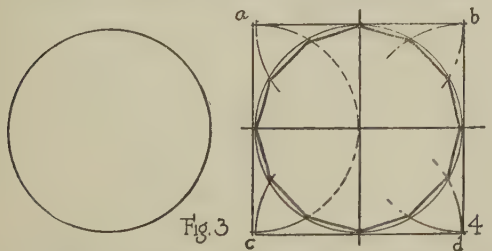
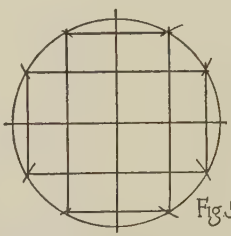


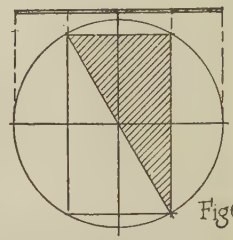

Fig. 3

II. THE CIRCLE AND THE DODECAGON

As we are confining ourselves to plane geometry (for the particular purpose in view) we must trace the corresponding perfect figure in that branch of the science. This is, of course, the dodecagon, or figure of twelve equal sides, which can be geometrically inscribed in a circle—the plane correlative of a sphere *(Fig. 3)*—by drawing first the vertical and horizontal diameters and from the four points of intersection of these diameters with the circumference, with a radius equal to the radius of the

circle, laying off the points of the dodecagon on the circumference *(Fig. 4)*. The intersections of these arcs outside the circle yield the vertices *(a, b, c, d)* of the circumscribed square.




THE TWO RECTANGLES & EGYPTIAN TRIANGLE

To show the geometrically proportional properties of this figure, we connect all the points of the dodecagon, two and two, by horizontal lines, parallel to the vertical and horizontal diameters *(Fig. 5)* and we have the perfect figure in plane geometry which, with the circle, was analogous to the dodecahedron and the sphere in solid geometry, according to the traditions of the Egyptian and Greek mathematicians.

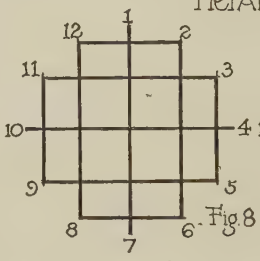



Fig 8

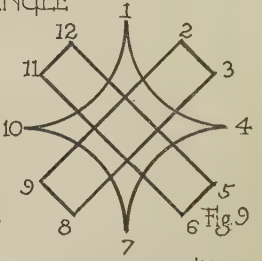



Fig 9

POLYGONAL SYNOPSIS—WORLD CALENDAR

This figure formed by the combination of the upright and horizontal rectangles has been called *"The Star of Perfection,"* and with good reason, for these rectangles will each be seen to consist of two Egyptian triangles (right angled triangles, one side of which is equal to one half the hypothenuse), placed hypothenuse to hypothenuse *(Fig. 6)*. The rectangles also divide the diameters into four equal parts. Furthermore, they are root-three rectangles. Root rectangles are figures of Dynamic Symmetry possessing remarkable mathematical properties, so-called because their sides, not commensurable by linear units, are commensurable by the areas of their respective squares. The square on the short side of a root-three rectangle is one-third of the area of the square on the long side *(Fig. 7)*. Hence the name, a root-three rectangle, because the short side is to the long side as one is to the square root of three $(1 : \sqrt{3})$.

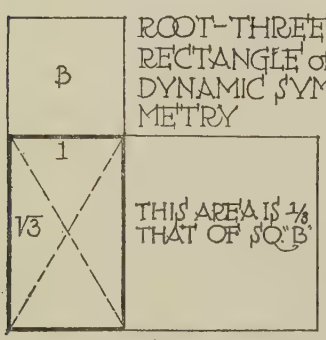
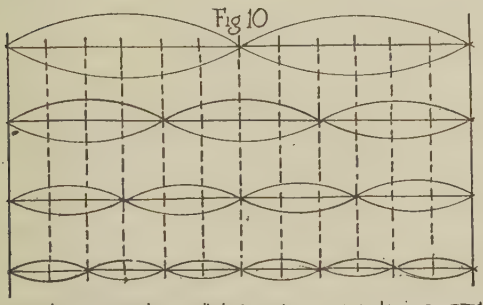



Fig 7

Now when we apply this "Star of Perfection" to The World Calendar of twelve months, arranged in the usual circular form, it is seen that the thirty-day months (eight in number) coincide with the eight apexes of the two rectangles, and the thirty-one-day months (four in number) coincide with the four extremities of the vertical and horizontal axes *(Fig. 8)*.

In order to further differentiate the thirty-day months from the thirty-one-day months, let us connect the former with straight lines drawn diagonally across the circle, and the latter with the arcs of circles *(Fig. 9)*. This results in a figure of considerable intrinsic beauty, for it is one of those androgynous symbols, like the *crux ansata* of the Egyptians, and the "rose and the cross" of the Rosicrucians, made up of a straight and angular member (masculine) and a curved member (feminine)—the *Yang* and *Yin* of Chinese philosophy, *Yo* and *In* to the Japanese.



THE NON-FRACTIONAL DIVISION OF 12 INTO HALVES, THIRDS, QUARTERS

Such a geometrical synopsis of The World Calendar is not something forced, but a natural and obvious thing. It serves to make plain to the eye that inherent harmony and perfection which it has to the mind. In order to realize that such is the case, try to apply a geometrical synopsis to the 13-month calendar. If beauty and symmetry be the desiderata it clearly defies every attempt in that direction. The reason why the first lends itself to such treatment and not the other is because of the harmony inherent in the number twelve, which is the first important *conjunctive* number. Let me try to explain just what I mean by that.

The progression and retrogression of numbers in groups as expressed by the multiplication table give rise to what may be termed "numerical conjunctions." These are analogous to astronomical conjunctions: The planets, revolving around the sun at various rates of speed and in different orbits come at certain times in line with one another and with the other heavenly bodies. Then they are said to be in conjunction. Similarly, numbers, advancing toward infinity singly and in groups (expressed by the multiplication table) at certain stages of their progression come into relation to one another—notably in the number twelve, for of a series of twos it is the sixth; of threes, the fourth; of fours, the third; and of sixes, the second *(Fig. 10)*. It stands to eight in the ratio of three to two; and to nine, of four to three. It is related to seven, the sum of three and four, by being the product of these two numbers.

It would seem obvious that the number of months in the year should be capable of division into quarters on account of the four seasons, which are determined by the earth's relation to the sun, and are more important than the moon's relation to the sun and earth, which is the only astronomical justification for the 13-month year. The other reason advanced by its advocates is that it makes the months exactly divisible into weeks. This seems too trivial to deserve consideration, because so clearly inspired by the desire of Big Business to simplify its accounting, for then the weekly pay-off would be commensurate with the monthly pay-off. All this is entirely beside the mark; it is a rendering to Caesar the things which are God's, and could result only in confusion and disaster.

# BRITAIN'S KEY POSITION

*By* J. B. PERRY-ROBINSON

*Secretary, Rational Calendar Association, London*

IN THE world-wide movement for calendar reform, Great Britain occupies in one sense a key position. At the League of Nations, where the United States is not a member, it has often fallen to the lot of Great Britain to take the lead, particularly in non-political matters of international administration. It is a saying at Geneva that "if you have the French with you and the British not against you, you can get what you want."

It was typical of many League conferences that at the 1931 Calendar Reform Conference, Sir John Baldwin's attitude particularly in his refusal to accept the report of the Preparatory Committee as the basis for discussion, should have influenced the whole course of the Conference. His instructions from the British Government were to support a declaration in favor of a fixed Easter, but he had virtually no instructions in regard to general calendar reform, and consequently the British attitude on the major question was entirely negative, which was probably the major factor in determining the negative character of the Conference's action on the general question on that occasion.

In order to avoid a recurrence of such a position when the League next takes hold on calendar reform, the Rational Calendar Association has for the past twelve months been directing most of its energies to providing the British Government with evidence of a strong British movement for general reform.

In Great Britain, representative opinion is paramount. It is difficult to get the British public to express an *ad hoc* opinion on any subject, and it will certainly only do so through the medium of its accredited mouthpieces. Consequently, it has been the policy of the Rational Calendar Association to approach the organizations representing industrial, commercial or religious opinion and persuade them to make pronouncements about calendar reform in the ordinary course of their representations.

By the declaration of support for 12-months reform promulgated by the Federation of the Chambers of Commerce of the British Empire (already reported in the Journal) a long chapter in this work has been brought to a close. During 1933 and '34 some two dozen of the Chambers representing major towns in the British Isles passed resolutions advocating a Fixed Easter and a measure of general reform. In 1935 this body of opinion crystallized in a resolution before the Association of British Chambers of Commerce in support of a fixed Easter. Early in 1936 the

movement was carried a step further by the passage of a resolution by the London Chamber of Commerce (which has always taken the lead among the commercial community of this country on calendar reform matters) stating that the best means of obtaining a fixed Easter was now its inclusion as part of a general scheme of 12-months reform. This resolution was taken up at the annual meeting of the Association of the British Chambers and was adopted as an expression of the views of the whole commercial community of the United Kingdom. The final stage was the proposal of a similar resolution at the October meeting of the Federation in New Zealand at which all the Chambers of Commerce of the British Empire were represented. It was again adopted unanimously and a complete and comprehensive expression of British commercial opinion has thus been achieved.

In the past four years a number of resolutions have also been forwarded to the Government by representatives of industrial opinion. Each industry in Great Britain has its own trade association which forwards to the Government representations on behalf of all the interests concerned in the trade. The latest of such resolutions are those adopted this summer by the National Federation of Grocers' Associations and by the Drapers' Chamber of Trade on behalf of all the grocery and drapery interests of the country. Both these resolutions advocated the equal-quarter plan of calendar reform for its own sake and also as the best means of obtaining a fixed Easter.

Apart from industrial and commercial opinion, the Government has also been informed of the views of several of the major "professional" communities. Chief among these where calendar reform is concerned are the statisticians, and in this field the Royal Statistical Society of Great Britain occupies a dominant position. At the instance of the Rational Calendar Association the Society last year appointed a committee of distinguished representatives of all the branches of statistics to consider the merits, from the statistical point of view, of calendar reform in general and to scrutinize all the different methods of reform that have been proposed. This Committee reported that a reformed calendar would be of benefit to statisticians, categorically denounced the 13-month scheme and embodied in its conclusions a reference to The World Calendar.

In preparing any estimate of national opinion the British Government will naturally consult astronomical circles whose concern with reform is almost as close as that of the statisticians. There is no representative body accustomed to expressing British astronomical opinion, but the Secretary of the Rational Calendar Association recently had an interview with Dr. Spencer Jones, the Astronomer Royal, who stated that he personally was in favor of a reformed calendar on a basis of 12-months and equal quarters. Dr. Jones gave it as his opinion that astronomers in general would

not accept a 13-month year. Other groups, such as the bankers, accountants and the underwriters of Lloyds have also stated their views to the Government at one time or another, mainly on the Easter question, which has now come to be identified with general calendar reform.

As regards the all-important question of the attitude of the Church, an emphatic pronouncement was made this year by the Archbishop of Canterbury himself in the House of Lords. Dr. Lang was speaking in the course of a debate on calendar reform arising out of a motion by Lord Merthyr urging the immediate introduction of a fixed calendar. After Lord Merthyr had introduced his motion, Lord Desborough recommended to their Lordships the particular scheme of reform known as The World Calendar, and then the Archbishop rose and in carefully measured terms, obviously determined by the consciousness that he was speaking on behalf of the whole Church of England, said that "he had found it impossible to resist the plea for this reform." This statement which was the first public pronouncement of the attitude of the Church of England on the general question as distinct from the Fixed Easter question, is certain to carry great weight with the Government, when the time comes to determine the attitude to be adopted by its representative at Geneva.

Lord Desborough, as the father of the calendar reform movement in Great Britain, naturally played a leading part in this debate in the House of Lords. Readers of the Journal will be well aware of the great influence which he has exerted in the cause of reform for many years. It is natural that his name should stand at the head of the list of the Vice-Presidents of the International Committee of Co-operation recently formed to take the lead at Geneva in all calendar questions. His energy and enthusiasm are of the greatest service to the movement, and the Rational Calendar Association is fortunate in having the benefit of his advice and his co-operation.

Among other distinguished individuals in Great Britain who have expressed approval of calendar reform on the lines advocated by the Rational Calendar Association are Lord Gainford, Mr. H. G. Wells, the Dean of St. Pauls, the Dean of Canterbury, Sir Francis Goodenough and Sir Stanley Machin.

The growth of British public interest in calendar reform during the five years that have passed since the last League of Nations Conference is unquestionable. References to it appear frequently in the national press, and they no longer have that derisive tone which was customary when calendar reform was regarded as involving a 13-month year. British opinion is perhaps still too conservative to take the lead in an international reform of this kind, but it is probably not too much to say that without British acquiescence, no such reform could ever be introduced.

That acquiescence will be forthcoming next year. The general aim of the activities of the Rational Calendar Association during the past year has been to impress upon the British Government that there is a strong body of responsible opinion in this country that recognizes the need for reform and advocates the equal-quarter plan. The resolutions from all quarters that have been showered upon the Prime Minister and the Secretary of State for Home Affairs, and the important pronouncement made by the Archbishop of Canterbury in the House of Lords, must have gone far to achieve the object in view. It should certainly be possible for the British Government on the next occasion to instruct its representative at Geneva that British opinion is definitely and positively interested in the question of reform.

# CALENDARS OF ANTIQUITY

By Jotham Johnson

*Field Director, Italian Expedition, University Museum, Philadelphia*

STUDENTS of calendar reform find a natural fascination in the calendars of antiquity. And in this field of history, the researches of archeology are gradually bringing to light a good deal of information which has hitherto been hidden and speculative.

For instance, the famous Egyptian calendar, which came into being by good management as much as by good luck, and staggered through a cycle which its own sponsors never measured correctly. It was not the best calendar ever devised, nor the worst—and neither is its direct descendant, our own present calendar.

There were only three natural time periods on which practical calendar systems of ancient times could be based—the solar day, the synodic month, and the tropical year.

It is true that a few ancient scholars attempted to assemble calendars based on the movements of the naked-eye planets—Mercury, Venus, Mars, Jupiter and Saturn—but these ambitious workers regularly ended up in labyrinths of astrological speculation.

The time-periods, then, which had to be dealt with by practical calendar makers were:

1. The solar day, defined as the interval between two successive passages of the sun across the meridian. This varies slightly; the *mean solar day* is the equivalent constant. In studying early calendars we need not distinguish between them.

The sidereal day, defined as the interval between two successive passages of a given star, is about 1/365 shorter than the solar day and does not figure in the study of ancient calendars. The day may run from sunset to sunset, less often from sunrise to sunrise; advanced cultures count from midnight; astronomers, who formerly reckoned from noon to noon, adopted the civil reckoning in 1925.

2. The *synodic month*, the variable interval between two successive conjunctions (new moons) or oppositions (full moons). Primitive peoples almost without exception reckoned from new moon, the earliest appearance of the crescent moon after conjunction. The *mean synodic month* is 29.5305877 days. The sidereal month may vary as much as seven hours; the mean sidereal month is 27.32166 days.

3. The *tropical year*, the interval between two successive returns of the sun to the equinox, is now 365.24219879 days but was once somewhat longer; in 500 B.C. it was about 365.24235, in 3000 B.C. about 365.2425 days. This is the solar year by which calendars are regulated. The sidereal year, the interval between two successive returns of the sun to a given meridian, is 365.25636 days; it played no intended part in systems of chronology, but as we shall see it must be taken into consideration in calculating the Egyptian cycles. The anomalistic year, or period between two successive returns of the earth to perihelion, need not concern us here.

In the absence of a common denominator, one of these units had to be chosen in which to express the others. The day, which grasps our waking

lives in its rhythm, was the universal obvious choice. Some primitive races had no greater unit. On a higher rung of civilization's ladder stand other groups who count in months; but in certain tropical and sub-tropical regions where agriculture appears as an accident rather than as the hard-won profit of planning and human effort, the years may roll by unheeded, and in the race-memory of the Greeks the myth of Demeter, Hades and Persephone looked back to a most ancient past when the cycle of seasons had been imperceptible or inconsequential.

All the races who were forced by climate or geography to recognize the yearly change of seasons had ultimately to choose between calendars of three types: one based on the moon, the second attempting to harmonize the cycles of moon and sun, the third based on the sun alone.

Obviously, nothing hinders us from counting up to infinity in lunar months, and some will so explain to you the great age of Methusaleh, as measured in months, not years. As a rule, however, tribes so primitive that they ignore the passage of years cannot count beyond ten, fixing a period of months which we may call a year. Among a few peoples, early Rome possibly included in their number, extension of this practice gave a sort of lunisolar year consisting of ten lunar months followed by a blank period—conveniently, the depth of winter—equal to two or three months; others have years of eleven months; others name, and count, only the months of the agricultural season, still others only the winter months; where there are two rainy and two dry seasons each year, *i.e.*, two complete agricultural cycles, a solar year may include two six-month agricultural "years." M. P. Nilsson has collected the variations on this theme.

The best modern example of a purely lunar year, however, is furnished by the desert Arabs. They depend entirely on observation of the new moon, so that they do not know in advance whether the month will be 29 or 30 days in length. At sunset of the 29th day they watch closely in the western sky for the first slender crescent. If it appears, the new month begins at once; if not, it begins on the following day. In March, 1929, while crossing the Syrian desert from Deir ez-Zor on the Euphrates to Palmyra, I witnessed a practical demonstration of this. Horsemen raced from tents on the horizon to intercept us, not to rob, but clamoring to know if the new moon, ending the painful month-long fast of Ramadan, had been seen at Deir the night before; for it had been cloudy in the desert.

Their year of twelve lunar months, 354.36705 days, varying between 354 and 355 in observance, anticipates the solar year by 10.875 days as the calendar rotates grandly backward through the seasons. This began with the hegira in 622 A.D., and in the 1315 solar years since then they have gained 14300 days or thirty-nine years; and in fact they are now counting the 1354th year of their era.

This calendar appears so natural and primitive that you will be sur-

prised to learn that it came into being artificially. Mohammed, finding a lunisolar calendar in use at Mecca, but the intercalations in the hands of priests who abused them for political ends, created order or rather a more agreeable disorder by forbidding intercalations forever.

Mohammed's calendar made trouble for Arab farmers, who have to learn to sow and reap at new calendar dates each year. Other races could not endure this, but tried by intercalating to keep the lunar dates in some accord with the solar year. This second group, dependent upon agriculture but clinging to the religious festivals which follow the lunar cycle, furnishes the widest variety, the most fascinating range of lunisolar cycles.

If twelve lunar months make a "lunar" year nearly eleven days short of the tropical year, two lunar years would fall nearly 22, three years nearly 33 days ahead, throwing the agricultural program wildly askew unless an extra, "intercalary" month was inserted to bring the two years back into approximate agreement.

Most primitive races did not attempt to fix a cycle in advance, but depended on empirical intercalation. This could be governed by reference to a fixed starting-point, for instance the heliacal rising* of a given star; if for instance the first month was to begin with the first new moon after the heliacal rising of the Pleiades, and if the twelfth month ended before such rising, it was easy to insert an extra month. The equinoxes can also be observed fairly accurately, and in Babylonia by the fourth century B.C. the beginning of the year had been fixed at the first new moon after the vernal equinox. I recently suggested that this held elsewhere, for example among the Nabateans of Arabian Petra, and that two curious obelisks on a hill-top beside the city were a sort of transit to observe the equinoctial sunrise and sunset. Other groups took the summer, or winter, solstice as the beginning of their years, but the solstice is not so easily observed, and we shall see what trouble it got the Egyptians into.

Some think of the intercalary month as repeated, as the Babylonians had their Addaru and Addaru II, the Athenians Posideion and Posideion deuteros ("second"), the Syrian Greeks Dystros and Dystros embolimos ("intercalary"). More primitive groups think of the repeated month as the month to which the name really belongs and ignore the previous month, which thereafter becomes a nameless "forgotten" or "lost" month. Still others, and curiously they seem to be the most numerous, have thirteen named months of which one can be dropped ("extracalated") when necessary to keep the years, lunar and solar, into agreement.

Economic ends did not always recommend empirical intercalation. A good example is Mecca, at whose annual festival pilgrims from all over the Arab world have been meeting since long before Mohammed. Under

* Said of a star's first appearance in the morning sky after conjunction with the sun. This is an important moment, for it bears to the year approximately the same relation as the new moon's appearance to the month.

a system of random intercalation, which might find its customers arriving indignantly at Mecca a costly month early or a month too late, the celebration could not long have retained the patronage to which it owed its existence. Most communities in like situation were ultimately driven to announce their intercalations in advance.

A really effective cycle of intercalations which would fix the calendar many years ahead provided a standing challenge for early astronomers. At this point the Babylonians walked off with all the prizes.

The problem was to find a multiple of synodic months and a multiple of solar years which closely coincide, after which period the cycle might begin again. We may skip a few centuries of trial and error, and note that a cycle of eight years, three of which are intercalary, provides an easy solution, for

| | | |
|---|---|---|
| 5 years at 12 months | 60 | |
| 3 years at 13 months | 39 | |
| 99 months at 29.5305877 days | | 2923.5282 |
| 8 years at 365.24235 days | | 2921.9388 |
| Difference | | 1.59 days |

It is hard to believe that so obviously satisfactory a cycle did not pass immediately into general use; but although ancient writers refer constantly and familiarly to the *oktaeteris,* in Greece our scanty evidence rarely permits us to peek behind the curtain and find the eight-year cycle in actual use; the priests apparently retained the right—the duty, perhaps they said—to intercalate at the bidding of the omens; at any rate, all was confusion. In Babylonian chronology eight-year periods appear here and there, but the cycle did not run perfectly smoothly; and indeed in a century and a half its error would amount to a whole month.

Astronomers in Babylonia went ahead to find a better one, and not later than the fifth century B.C. they lit upon a cycle of nineteen years, seven of which are intercalated:

| | | |
|---|---|---|
| 12 lunar years at 12 months | 144 | |
| 7 lunar years at 13 months | 91 | |
| 235 at 29.5305877 days | | 6939.68811 |
| 19 solar years at 365.24235 days | | 6939.60465 |
| Difference | | .08346 day |

At that rate, after twelve cycles, two and a quarter centuries, the lunar year would only be one day out by the sun. No ancient people determined to adhere to a lunisolar cycle needed a better one than that and on the strength of it I take hearty exception to the late J. H. Breasted's statement that "the effort to fit the series of moon months into the cycle of the year was never successful."

We find that Greek mathematicians and philosophers, not perfectly satisfied, wrote learned tomes to promote crackpot 59-, 76-, 82- and 304-year variants on the nineteen-year cycle. Calendar reform was in the

air, and they were concerned not so much to correct it as to extend it to include needlessly within its prophecies the lengths of months, since regular alternation of 30 and 29 days speedily encountered trouble. The Babylonian cycle allowed lengths to be determined by lunar observation.

Such a cycle, however, is tested better in operation than on paper. The *enneadekateris* meets that test magnificently except in Greece, the home of its alleged discoverer Meton. We are told that Meton devised it in 432 B.C. but it seems unlikely that he could have had access, anywhere in Greece at that time, to astronomical records systematic and complete enough for the calculation. In Babylonia, on the other hand, we know that the records were astonishingly complete and an impartial critic may be forgiven, with Fotheringham, for suspecting that Meton merely publicized in Greece what he had learned in eastern travels.

In view of this disagreement we may be interested to compare Greece and Babylonia's haste to adopt it. Fortunately the researches of Meritt cover the generation beginning in 432 B.C. and show, instead of the adoption of the nineteen-year cycle, the greatest irregularity prevailing. The distribution of intercalary (I) and ordinary years (O) in any lunisolar cycle is governed by a simple rule: either one or two ordinary years—no more, no less—must intervene between two intercalary years. Obeying this, a nineteen-year cycle with seven intercalary years must give the sequence

O O I O O I O I O O I O O I O O I O I,

any year of which, be it noted, may be taken as the initial year of the cycle. Nowhere do two intercalary years nor three ordinary years come together. But during the Peloponnesian War we find both these errors.

The next three centuries of Athenian chronology have been more recently subjected to an exhaustive study by Dinsmoor, who found the nineteen-year cycle impossible to trace. Even the eight-year cycle appears no oftener than the laws of chance predict.

Among the Babylonians, on the other hand, the calendar in use through the whole fifth century approached closer and closer to regularity until, in 383 B.C., it crystallized forever in the nineteen-year cycle. From them, as I have shown, it was taken over by the Seleucids who inherited Alexander's empire in Syria, Mesopotamia and points east. Their only change was to begin their year, not with Babylonian Nisannu, the month begun at the first new moon after the vernal equinox, but with Tashritu, the seventh month, since Dios, initial month of the old Macedonian calendar, was associated with the autumnal equinox. Both calendars intercalated the same month, Dystros-Addaru, last month of the Babylonian menology, sixth of the Macedonian.

From them in turn, it seemed to me on scanty evidence, the Parthian kingdom, which came into being about 250 B.C., derived its calendar;

newer material has tended to confirm this. But I did not then know that China's present calendar, which is hardly to be distinguished from it, goes back to the Han dynasty who got it from their contemporaries and correspondents the Parthians.

If we add that the sacred calendar in use by the Jews since 358 A.D. is likewise a 19-year cycle distinguishable from the Babylonian in no major particular, and that the date of our Easter varies notoriously in a nineteen-year cycle dependent on the relation of new moon and vernal equinox, its tenacity and serviceability, its resilience in the face of improvements, are seen to be extraordinary—an honest triumph, not an "intolerable inconvenience" for its discoverers.

The outstanding example of a primitive race which resolutely turned its back upon the moon and based a calendar on the sun's period is the Egyptian. Their whole economy depended on the Nile floods, which begin shortly after the summer solstice.

In the third millennium B.C. they learned the approximate length of the tropical year, and made their year 365 days. At first they intended it to begin at the solstice, a natural New Year Day. Their older calendar, based on the moon as we learn from the hieroglyph for "month," provided twelve suitable subdivisions which they arbitrarily stabilized at thirty days, adding five extra days at the end. Their determination to retain this calendar, in the face of inconveniences it developed, is enlightening.

For they had made no provision for the odd .2425 day. As early as the IVth dynasty we find that they had to observe two New Year Days, the "First of the Year," as scheduled by the calendar, and the "Opening of the Year," when with the arrival of the flood the new agricultural year actually began. Determined to have a fixed 365-day year, they allowed New Year Day to swing backward through the seasons uncorrected. This "great cycle" would end when the cumulative error added up to a whole year, New Year falling once more on the solstice.

But here is the source of new confusion. The Egyptians seem to have thought that this period was $\frac{365.25}{.25}=1461$ years by the Egyptian calendar, 1460 solar years. That is the wrong figure on which Sosigenes based the Julian calendar and the figure commonly given in the handbooks; the correct length of the cycle would be $\frac{365.2425}{.2425}$, which gives us a considerably different period, 1506 calendar, 1505 solar years; but this does not fit requirements either. The fact is, as Censorinus says, that the observation which foretold to the Egyptians the arrival of the flood, the natural beginning of the year, was not the solstice but the heliacal rising of Sirius, which they called Sothis. This was preferred because it was more easily observed than the solstice; and between 2900 and 2700 B.C.,

while the Egyptian calendar was forming, it varied only a day or two from the solstice; no one was in a position to predict that it would change in a 26,000-year cycle of its own. Actually, however, thanks to the precession of the equinoxes, the heliacal rising of Sirius was falling later than the solstice at the rate of one day in about 120 years, so that the true Sothic cycle was not 1505, not 1460 but 1456 solar years—1460 being so near right that it fits some of the evidence.

Censorinus tells us that in 139 A.D. the heliacal rising of Sirius on Thoth 1=July 20 by the Julian calendar (July 19 Gregorian, 25 days later than the solstice after three thousand years) ended a cycle and began a new one. Two 1456-year periods back put the beginning of a cycle in 2774 B.C. This cycle ended 1456 years later, 1318 B.C. to be precise, four years earlier than the astronomers of Ramses I's sophisticated court perhaps expected. A pitfall: we can almost hear them sniff, and accuse their remote predecessors of poor observation; yet in 1314 B.C. Thoth 1 was only one day soon, and after a millenium and a half of turbulence who would have expected the original data to survive? And possibly similar considerations led them to overlook a repetition in 139 A.D.

Most authorities, including—worse luck because they reach a wider audience—the encyclopedias, give 4241 B.C. as the date of the establishment of the Egyptian calendar, "the earliest fixed date in history." Three 1460-year periods back from 139 A.D. would in fact give 4242; Breasted accepts Borchardt's date of 4236 B.C.; three periods of 1456 years would actually take it back to 4230 B.C.; but I consider such a date most unlikely. I find it hard to believe that men whose other attainments were so limited had carried astronomy so far, or that there was a government in fifth-millenium Egypt organized enough and centralized enough to be interested in promoting over the jealous opposition of the priests a universal calendar. And I am troubled by the fact that in 4230 (or 4236) B.C. the heliacal rising of Sirius occurred a week before the solstice.

The great argument in favor of going back one whole cycle from 2774 (or 2776) B.C. has been that the Pyramid Texts, presumably older than this date, refer to the intercalary days of the year's end; and admittedly the cycle could have begun only when Thoth 1 coincided with the heliacal rising or solstice. There is no place to stop between 2774 and 4230 B.C.

But there are several ways out of this. Let us assume, for example, that about 2900 B.C. there was instituted in Egypt a calendar of twelve thirty-day months with a certain number of days—in practice five or six—empirically intercalated, the new year beginning with the heliacal rising of Sirius when observed, at that date coincident with the solstice. If it did not appear on the 366th day, it presumably would be observed on the 367th. This explains why the Egyptians, whose calendar depended on this observation, began their day at dawn, while the Greeks who

like modern Arabs depended on the new moon, began theirs at dusk.

Wearying, after a century or so, of adjusting the length of the year empirically, the Egyptians decided, simply, that a fixed 365-day with its disadvantages was preferable, and at that point, 2774 B.C., Thoth 1 and the heliacal rising (still thought to be synchronous with the solstice) began their slow cycle of divergence.

This or some similar explanation appears to be infinitely preferable to a 43rd-century date for the inauguration of the Sothic cycle. A date in the fifth millennium has after all been retained largely for sentimental reasons because (a) it appears to give Egypt definite priority over the old archaeological rivals in Babylonia, and (b) it appears to be a crushing comeback to the Bible Belt and Bishop Usher's date of 4004 for the creation —how long is it since such an answer has been needed?

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## OBITUARY NOTES

BISHOP WALDEMAR AMMUNDSEN, head of the European Section of the Universal Christian Council, died in Denmark on November 30. Born in 1875, he became Professor of Church History in Copenhagen University when he was 26 years old, and six years later published the first of a series of Lutheran studies which won him distinguished recognition throughout Europe and America. After the World War he devoted himself largely to international problems and the advancement of church unity. He had long been an advocate of calendar reform, and was prominent in bringing this subject to the attention of the world churches through the Universal Christian Council.

MME. CELINE VILLEMIN, president of the Cercles des Annales, a French-American Society, died on September 14th. Mme. Villemin had been interested in the subject of calendar reform as a means of bringing a better understanding between peoples.

OTHER deaths among the membership of The World Calendar Association during the past few months included: Hon. James Couzens, senior United States Senator from Michigan; Mme. Ernestine Schumann-Heink; Mr. John E. Gratke, managing director of the Broadway Association; Dr. John H. Logan, Superintendent of Schools, Newark, New Jersey; His Eminence Louis Cardinal Maurin, Archbishop of Lyons and Primate of France; Dr. Herbert C. Dana for 14 years chaplain of the Metropolitan Hospital on Welfare Island.

# SENSIBLE TIME RECKONING

*By* E. B. Traneus

(*Translated from an article in Sunt Förnuft, Stockholm*)

OUR GOOD old Gregorian calendar is ripe for revision! This is probably news to many Scandinavians as with the exception of a recent radio lecture very little has been heard of this matter in our country. But so much has been written and spoken about it in other countries that it seems only proper that we too should get acquainted with the proposed reform of our calendar.

The object of the revision is to save time—certainly a worthy motive. It is indeed the same motive that actuated the revisions made by Julius Caesar in 45 B.C., and by Pope Gregory in 1582. The latter was the most recent reform of the calendar.

And now, we reiterate, the time is considered ripe for a new revision of time reckoning. The first proposals for this reform were made 100 years ago, but it is only in the last two decades that real progress in this direction has been made. Just before the World War, the international congress of Chambers of Commerce came out in favor of a revision of the calendar, and the discussions thus started continued on an international platform after the war. Ten years ago the League of Nations took up the question, and since then the field of activity has constantly widened. There exists an international committee in Geneva, a "World Calendar Association" in New York, and organizations for the study and promotion of calendar reform in a great number of countries.

What, then, are the objections held against our present almanac? They can chiefly be summarized as follows:

First, the calendar year is not evenly divisible into weeks but contains 52 weeks plus 1 day, and 2 days during leap year. As a result of this, the month-dates and week-days do not coincide from year to year, which causes many inconveniences. The critics, therefore, are striving to get all the years to begin on the same week-day.

Second, the months cannot be arranged in half-years and quarters of uniform length. The first half year has 181 days and the second 184. The four quarters have 90, 91, 92 and 92 days respectively. The varying lengths of the months and their unsymmetrical placing within the year, are considered relatively easy to remedy.

Third, months have a varying number of days. February, for example, has only 24 working days, while other months contain up to 27. This is considered a very serious inconvenience, but is one simple to correct.

Fourth, Easter wanders between March 22 at the earliest and April

25 at the latest, varying over a period of 35 days. This can be adjusted on the basis suggested by the British Parliament.

Many proposals for a new calendar have been made. The League of Nations has considered almost 1000 such proposals. However, only two reform proposals have survived the League's scrutiny—the so-called "International Fixed Calendar" of 13 equal months and the "World Calendar" of 12 months divided into equal quarters.

The 13-month plan is the less practical of the two proposals. While it would eliminate some of the disadvantages of our present calendar, a year of 13 months involves many drawbacks. The number 13 is awkward and not evenly divisible by 2 or 4. A 13-month calendar would not have any readily-available half years or quarters. Computation of interest and rents would be made more complicated than ever. Reports, statistics, invoicing and periodic meetings, which by age and custom are monthly, would involve added work because of the extra month.

For plenty of reasons, a reform along these lines of the 13-month proposal seems to be out of the question, in spite of the fact that it has been energetically propagandized.

The World Calendar, however, looks more practical. It proposes four identical quarters, each containing exactly 3 months or 13 weeks or 91 days. Every quarter begins on a Sunday and ends on a Saturday. Every month has 26 working days. This has been achieved by giving the first month in each quarter 31 days and the two other months 30 days apiece, making 364 days per year.

To make the calendar perpetual—that is, identical for each year—a zero day is inserted between December 30 and January 1. This day is to be considered as an extra holiday, and the same would be the case with the quadrennial "leap-day," which would be inserted between June 30 and July 1 every fourth year.

Thus, according to this World Calendar, New Year's Day always falls on a Sunday. Supporters of this reform plan its adoption beginning with the year 1939, which year commences with a Sunday. The transition could then be accomplished with the least complications. The next time that a year will commence with a Sunday will not be until 1950.

It must be agreed that a calendar of this type is very simple and attractive. The children can learn it in school like the multiplication table, and each year will be like the next. The half years and quarters will also be uniform. No time will have to be wasted in advance figuring, when it concerns the week-day for a certain date or vice versa, as these will coincide every year so that, for example, May 14th will always fall on a Tuesday and September 30th always on a Saturday.

Finally, if Easter is fixed, a truly constant, perpetual calendar will have been accomplished—one indeed which is both practical and scientific.

It is, of course, impossible to estimate how much time is wasted annually in the study of calendars and almanacs, in the effort to keep track of the ever-changing connection between month-dates and week-days. It is strange that people who in other respects have insisted upon an ever-increasing exactness in measurements of many kinds, seem to have been content with a time reckoning which is irrational and unsymmetrical.

Aside from certain astronomical facts over which we have no control, it is really rather surprising that our times, which are so insistent upon standardization and rationalization, are satisfied with a monthly division, the irregularities of which go back to the idle caprice of a Roman emperor who lived nearly 2,000 years ago!

It will be observed that in the proposed new calendar Christmas Eve always falls on a Sunday. In this way, three consecutive free days at Christmas are obtained. Midsummer's Eve, a popular holiday in Scandinavia, will always fall on a Saturday, which also might bring with it consecutive free days for rest and recreation. The significance of this regularization of holidays in such matters as the planning and carrying out of holiday traffic by railroads, steamships and bus lines, should be clear to everyone.

The planning of the curriculum for our schools is an annual task of huge proportions, which must be repeated every year so that holidays and other free days can be fitted suitably into the scheme. With a perpetual calendar as a basis, this work can to a great degree be performed once for all, with a saving of time and mental labor for all educators and educational authorities.

A perpetual calendar would mean enormous savings in printing, in bookkeeping, in law, banking, accountancy and many other fields.

On the whole, each one of us in our own sphere of work can bear witness to the fact that the ever-changing calendar causes considerable extra trouble which we would be thankful to escape. For that reason, no serious objections ought really to be made to a reform of time reckoning along the lines of The World Calendar. I am sure the proposal will be greeted with general approval by Swedish public opinion.

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## STUDY BY WORLD STATISTICIANS

EMINENT statisticians, meeting in Athens, Greece, early in the autumn for the biennial sessions of the International Statistical Institute, ordered a formal and complete study of calendar reform to be made by the Institute's Committee on Transportation. The action of the Institute was inspired by Dr. Hans Platzer, director of the Statistical Bureau of Germany, and by Prof. W. F. Willcox of Cornell University.

# LOOKING BACKWARD

*By* Latrobe Carroll

LET'S do a bit of pretending. Like the hero of H. G. Wells' story, "The Time Machine," we have gone, let us say, on a sudden journey into the future. We haven't rushed forward very far—just far enough to give us perspective. Having turned a dial on our time machine, *whisk,* we have landed right in the middle of 1955: a date we chose at random.

We happened to find ourselves in a town of moderate size. Moreover, we were in the home of the Blakes, though quite invisible to them. Nice people, the Blakes—we realized that at once. There were, it appeared, four in the family: John, Edith, and their two children: Nancy, an intelligent eleven, and Tommy, a likable nine. Plainly, some sort of tea-time celebration was on; it turned out to be the Blakes' wedding anniversary. And there were guests: Bill Marshall, his wife Julie, and a daughter, Gwen.

The living room was pleasing in its simplicity. There was no aimless clutter in it, though a chest stood near the center of the floor with the casual air of having been placed there just for the occasion.

Abruptly, Tommy Blake made a dash for the chest. "I'll be the one to open it!" he cried. The lid flew up under his eager hands.

Everybody gathered around. Tommy's fingers were busy in the box. He pulled out an odd-looking object which he held up, challengingly, before Gwen's eyes. "Bet you don't know what *that* is!"

"Oh, but I *do,*" the little girl protested. "It's a bustle. And I know how women used to wear them."

She proved this by putting it at her back and tying it around her waist.

A tag, with lettering on it, dangled from one of the bustle's wires. Marshall leaned forward and read, aloud, "Relic of a foolish fashion: flourished in the eighteen eighties." Straightening, he announced, "Now I see what all this is. It's the Blakes' own private museum."

"Right," said John Blake. "It's our family tree of absurdities. And we add to it from time to time. Whenever we find ourselves using anything ridiculous, in it goes. That bustle belonged to my wife's grandmother. And this"—he lifted out a mustache cup—"had the honor of keeping Great-Uncle Henry's mustaches out of his coffee."

It was Nancy who next pulled out a woman's flannel bathing suit. Its skirt must have almost reached its wearer's ankles. There were black cotton stockings and round garters to go with it. The next grab brought out a whalebone corset and the next a hoop skirt.

"It's *my* turn now!" Tommy lunged, and produced a woman's leather belt, frayed at the edges from use. His father took it from his hand with, "See here, Marshall! I'll show you something interesting." Blake put the

belt around his head. "Look. It exactly goes round my skull. The woman who wore it laced so tightly that a man's hatband could have circled her waist. Painful thought. . . . How did the race survive, anyway?"

Blake began to grope downward into the box. "I want to show you the gems of my collection," he said, and drew out a large package wrapped in tissue paper. "A relation of mine designed some of 'em," he added.

Presently the contents lay revealed: *calendars* in a tight mass—large, small, almost all sizes, some plain, some adorned with gaudy pictures. Blake spread them all out on a table with slow, careful fingers.

"Whatever are they, anyhow?" Gwen cried. Then, realization dawning, "Don't tell me. I know. I've heard about them. People had to have a fresh one every year. They called it 'this year's calendar,' and threw the old one away. Wasn't that a dizzy idea?"

Tommy had been making impatient noises and, now, words burst from him. "Yep, and they used to tell time by hour glasses and sun dials. And they rode in stage coaches and sniffed snuff." He gazed at the litter on the table. "I'll bet the same ones that wore hoop skirts and took snuff liked going by those old calendars. Why, take Easter—" He halted, uncertain. "Wasn't there something mixy about old-time Easters?"

"Yes, Tommy," said Marshall, dryly. "It used to wander."

"Please let *me* tell the rest." It was Nancy, pleading. "I learned it at school and remembered it because it was so funny and silly. Easter could bob up anywhere between March twenty-second and April twenty—"

"April twenty-fifth," Blake supplied. "It slipped and slid, from year to year—"

"Till they could hardly catch the Easter bunnies." A giggle from Gwen.

Nancy was determined to tell more. "And Christmas and Fourth of July and birthdays came on different weekdays. All higgledy-piggledy."

"Don't forget marriage anniversaries," Julie Marshall said, "because one brought us here."

"Sure, mother and father got married on a Saturday," Tommy volunteered, "and, now, their anniversaries always come that same day."

Julie nodded. "But with the old-fashioned calendar, no matter what day people married on, paper and tin and silver weddings, and all the others, often just got lost in the business rush. Husbands forgot."

Blake walked over to a desk and picked up something that seemed almost a part of it: a World Calendar. On its simple stand, with its look of permanence and dignity, it was a work of art. He set it at the edge of the cluttered table with an air of satisfaction. His wife smiled at him and waved a comparing hand. "Those poor, fumbling old calendars. They do actually look medieval. But, really, it wasn't so long ago—"

"*How* long?" Gwen demanded.

"Why, don't you know?" Nancy said. "The new ones began in 1939."

"Because Sunday was on January first that year," Tommy cut in. "And people had a whopping celebration—in America, England, France, Germany—and lots of places. They were glad to get together on something."

Blake nodded in agreement. "But don't forget the protest meetings, son. Some people thought the calendar-makers were monkeying with time. They didn't realize that no calendar can take a single second from a life."

"And they weren't the only objectors"—from Marshall. "Remember what a howl the die-hards made about the labor of changing statutes and contracts? Funny, isn't it, how big a bugaboo looks till you tackle it? All it really amounted to was a little clerical work. Any schoolboy could convert the dates of the old calendar into the dates of the new one."

Nancy turned a small, eager face toward her mother. "But nineteen thirty-nine wasn't the only chance to change the calendar, was it? I mean, there'd been other years when it could have been put right?"

"Oh, yes," Edith Blake admitted.

"Well, then, I think grown-ups were kind of dull. Duller than they are now. How could children—I don't see how—I mean, how could they look up to their parents when older people just didn't have—"

"Any sense?" her mother suggested. Nancy gulped and nodded.

"Heh! Be fair, Nan." Blake's voice was light but his eyes were grave. "Admit that, if you'd lived in those times, even if you were grown up, you might have helped the old way to stick by not rolling up your sleeves and working for the new one. You might have been so busy with your own affairs that you'd have left such things to the other fellow—and wouldn't have bothered about whether they got done or not."

"Well . . . I s'pose . . . maybe—" said Nancy with tactful vagueness.

"I really don't believe," Blake brought out slowly, as if debating with himself, "that our forebears were less intelligent than we. The cleverer men and women in any age can see that changes ought to be made. But there's nothing more slow-moving than masses of people."

As Blake reassembled his special treasures Marshall's eyes rested on them. "I know it's ancient history, but wasn't there some discussion, 'way back, of changing to a thirteen-month calendar?"

"Yes. Plenty of talk, though it's long since forgotten. The plan had some points. But it was too drastic. The old Gregorian calendar was sick, but the thirteen-month year as a cure—was worse than the ailment."

He was wrapping up his old calendars as if they were precious plate. "Valuable, most of these," he commented. "Real collectors' items. And every year that passes puts their price higher. Dealers have been snapping 'em up. But the best thing about them—and this whole box of junk—is that they teach our youngsters the world *does* move. Slowly, of course—takes a lot of pushing. But we all must learn to help in the pushing."

# ROMANCE OF THE CALENDAR

*By* P. W. Wilson

In this issue, the seventh chapter of Mr Wilson's discussion of the Romance of the Calendar is published. A book by Mr. Wilson, under this same title, is to be published immediately after January 1 by W. W. Norton & Co., New York. It is described by the publisher as "the most important book on the subject which has ever been attempted." The book will sell for $3, and will be published simultaneously in London. It has been more than two years in preparation, and its authoritative character is testified by the fact that Mr. Wilson in a prefatory note acknowledges the assistance of such eminent experts as Lord Desborough, Bishop Manning, Dr. Edward S. Schwegler, Prof. C. C. Wylie, Dr. Henry W. Bearce, Captain J. F. Hellweg, Dr. Hans Platzer, Dr. Alfredo de Castro and Rabbi Weitz.

## CHAPTER SEVEN: TRIUMPH OF TWELVE

IF WE WISH to understand the early development of the calendar, we must endeavor to visualize what was the life actually lived by primitive man. Let us look backward into the remote stone ages when civilization was in its infancy. There is the Palaeolithic or earlier era. There is the Neolithic or later era when man used spears and hammers and other tools—when he lived in a house and was buried in a tomb—when, as a farmer, he tilled the soil and kept flocks and herds—when, as an artisan, he spun thread, wove cloth and moulded pottery. It is to this man that we owe the origination of the method of measuring time.

Between the life of the Neolithic man and the life that we live today, there was a contrast which can be expressed in terms that are at once simple and comprehensive. We live under cover. He lived out of doors. That was the difference which included all other differences. Some of us live in the country, others of us live in the towns, but the amenities of our existence, whatever our domicile, tend to become more and more urban and less and less rural than they used to be.

The change has been rapid of late, it envelopes us on every side, and little do we realize as a rule to what an extent, especially in cities, we are sheltered from the elements around us. It is not only in the home that we have a roof over our heads. Our means of transport—automobiles and trains and ships and even airplanes—are enclosed against wind and rain and snow and shine.

By artificial devices of every kind, we counteract the vicissitudes of our environment. Windows are so constructed that at will we can admit or exclude the rays of the sun. So powerful are our lamps that we need never be in the dark. We are warm when it is cold. We keep cool when

it is warm. Nor are the noises that we hear to be described as natural noises. The singing of birds, the bleating of sheep, the lowing of oxen, thunder itself are remote from our cacophonies. It is the clatter of machinery, moving or stationary, that fills the modern orchestra with a syncopation that does not change all the year round. Why need we worry about summer and winter? Cannot we follow the seasons, hither and thither, over the surface of our planet, wintering under the sun and enjoying a summer where the landscape is glorious with ice?

How was primitive man situated? There might be some kind of a roof over his head but, at best, a mere umbrella was all that he had to carry with him. What glass was there in his windows? What light was shed by his lamps? What heat radiated from his open fire as the smoke rose slowly through a hole in the rafters or by the tent-pole that served as the only chimney? Such folk could not fly from the inclemencies around them to any Riviera. They had to submit to whatever discomforts and dangers the weather inflicted on them. How they shivered when there was frost! How they sweltered when the heat was sultry!

It was no wonder, therefore, that primitive man was more acutely conscious of climate than we need to be. Not enough was it for him to note the phases of the moon and count the days in each successive lunation. The months, thus equal in length, were by no means uniform otherwise. In some, there was much light and little darkness. In others, there was much darkness and little light. Some of the months were wet and stormy. Others were bright and warm.

To the moods of the months, the environment around man's habitations was immediately responsive. Trees which had been brown and bare, would break forth into leaves and array themselves in blossoms. Grass would grow into fresh green, and birds would build nests, lay eggs and rear their young. What then was the meaning of a variety thus awful in its entrancing but formidable fascination? Why was each month as a new chapter in the volume of the centuries?

Man as a child learning to talk found names for the beasts of the field and the flowers of the forest. So did he name the months. In the Mesopotamian Valley, so it is believed, such names were applied six thousand years ago, and we may see for ourselves how the months were distinguished by Abraham, Isaac and Jacob and their contemporaries. Forty-three centuries ago—that is, some centuries before the call of the Patriarch —the Nippurian months—a more popular term would be Chaldean or Babylonian—had these names. August-September was *Mas-Azag-Kur*, or month for eating tender kids that were fit for sacrifice, and a reminder of this name is found in a Biblical incident when the mysterious and angelic strangers visited Abraham in his tent, to be entertained with just such a kid, "tender and good." March-April—*Itu-Su-Es-Sa*—was the

month for utilizing machines for irrigation. July-August—*Se-Gur-Kud*—was the month of the barley harvest. So we might proceed through all the months in their rotation.

It is a far cry from the Chaldea of sixty centuries ago to the scattered archipelagos of the South Pacific Ocean in our own day. Yet those islands tell the same story that we read in the dim annals of the Euphrates Valley. Are not many of the natives living at this moment within the era of polished stone? Are they not using their calendars under conditions that are still primeval?

We spare a glance for the Fiji Islands and see the people setting up moon-sticks as monthly tallies whereby they may reckon, among other matters, their wages. Off the coast of New Guinea, the Trobriand Islanders are no less calendar-minded. They recognize the phases of the moon, describing the new moon as "unripe" and the full moon as "high". The period when the moon cannot be seen by human eye is known as "the great darkness". During high moon, five days are honored by separate names, and as the moon wanes, six other days are honored by special names. When the moon is at the full, three days are celebrated as a festival. But when the moon is lost to view, no day has a name. It is a period when the calendar is in abeyance.

On the Trobriand Islands, there are unclad astronomers who, with wandering eyes, watch sun and stars, as well as the moon. Yet they fail to perceive any orderly relation between the celestial bodies. As meteorologists, they are content to discern a magic of evil in the sun and a magic of good in the rain.

It is as meteorologists that the Tonga or Friendly Islanders have applied names to their months which signify little yams, yams with small protuberances, early rain, late rain, putting forth living shoots, dead shoots, laying earth, storing yams, time of rotting yam seed, full leafiness, yellow heads on fish, throwing soil on branches or banking soil over yams, using a mere cocoanut shell as a basket at time of scarcity when only a small receptacle is needed.

In the ancient Japanese calendar, we find that there were 24 half-monthly periods in the year, each with its name and each name related to the occupation of the farmer. The series began in February and is as picturesque as all things were in old Japan. We have:

Rise of Spring, Rain Water, Awakening of Insects, Vernal Equinox, Clear and Bright, Cereal Rain; Rise of Summer, Little Filling, Grain in the Ear, Summer Solstice, Little Heat, Great Heat; Rise of Autumn, Limit of Heat, White Dew, Autumn Equinox, Cold Dew, Frost Fall; Rise of Winter, Little Snow, Great Snow, Winter Solstice, Little Cold, Great Cold.

There were similar names for twenty-four half-months in China.

To name the months was a step—at first, a tentative step—to counting

them. Among the Tongans, the word for year is the same as the word for yam, and the period, in so far as it has been definite, may be described as the routine of the gardener. Five unripe moons and five ripe moons are sufficient for the growth of plants and little importance is attached to intermediate months. If the crops are early or late, it will be said that such and such a district has "silly" time, which irregularities are corrected by an annual phenomenon that never fails. From May to November, the prevailing wind blows south and east; from December to April, the prevailing wind, known as the monsoon, blows north and west.

Thus began to develop the idea of a year of moons, a seasonal year, and it is interesting to observe that the American Indian, brought into contact with civilization more highly elaborated than his own, has applied seasonal names, as in primitive times, to the Gregorian Calendar itself. To Hiawatha, names like January and February and the rest meant nothing. The Indian thus speaks of Cold Moon, Hunger Moon, Crow Moon, Thunder Moon, Green Corn Moon, Harvest Moon, Hunting Moon, Frosty Moon, and Long Night Moon. He adopts the measurement of time which is general in modern countries, but he still thinks in terms of what Longfellow called the forest primeval.

In his endeavor to count the lunations, man came to be conscious of a peculiar and mystical intimacy between the moon and himself. There was a period that was preparatory to his own birth. It was approximately 280 days, and the Iranians, dwelling near the Caspian Sea, calculated a month of 28 days—four times seven—so arriving at 10 months as the period in question.

So developed the conception of a year—that is of an arrangement of the months in an order larger than themselves. The year was intended to be a cycle of months—of lunar months. It was a schedule in which months of the same characteristics would recur in a regular sequence.

To this day, there are calendar reformers who ask how many months should be fitted into a year, and this is one of the earliest questions that perplexed the mind of man. It is a question that far antedates what usually we define as recorded history, and the answer is also prehistoric.

If there ever was a choice, it lay between twelve and thirteen months for the complete year. The idea that thirteen is an unlucky number has long been familiar. People do not like to dine at a table where thirteen are seated and there are ocean liners where no cabin has the number thirteen. Usually the prejudice against thirteen is attributed to the scene at the Last Supper of Our Lord when thirteen, including Judas Iscariot, were present at the Table. But Mr. H. G. Wells in his *Outline of History* suggests that the advantage of twelve over thirteen was inherent from the first in the numbers themselves. Describing the culture of Neolithic man he writes: "He was beginning to use tallies and wondering at the

triangularity of three and the squareness of four, and why some quantities like twelve were easy to divide in all sorts of ways, and others like thirteen, impossible. Twelve became a noble, generous, and familiar number to him, and thirteen rather an outcast and disreputable one."

Thirteen is a prime number and thus indivisible into factors. It would not be easy to pack thirteen eggs in a box without wasting space; twelve eggs can be packed three by four or six by two. Hence the practical unpopularity of the number thirteen.

In Funk and Wagnall's larger dictionary, there are exhaustive lists of weights, measures and currency, running to many columns of close print and covering every standard of such reckonings of which we need take account, whether ancient or modern, eastern or western, civilized or barbaric. We find that the numeral eleven is used in linear reckoning—1760 (11 x 160) yards make a mile—and very awkward it is. But we do not find a record of one important instance anywhere in the world at any time of thirteen serving as a numeral for measurement. In Siam an oil measure called the bota equals 26 or twice 13 Maneh. A wool measure in England called the wey equalled 6½ or half thirteen tod. In Ireland, there used to be a coin valued at thirteen pence and known as a "thirteen" or "thirteener." That is about all.

The baker's dozen of 13 loaves is not pertinent. Dozen is the colloquial English for the French *douzaine* or twelve, and the addition of one to the number merely indicates that thirteen are sold as twelve for the advantage of the buyer. It is not a count but a discount that is here indicated, and it may be compared with a quire of paper which contains 24 sheets or two dozen, with one sheet occasionally added to make 25.

In telling the story of the calendar, a year of twelve months is the only year that we have seriously to consider, and the number twelve, as we contemplate its uses, is seen to be of an eternal importance. Despite all decimal systems, there are twelve inches to the foot and twelve pennies to the shilling. So has it been with the clock and the calendar.

They who have played the ancient Chinese game of Mahjong do not need to be told that the tiles in the wall include four winds and four seasons. We cannot escape from these ultimates of direction—north, south, east and west, nor can we escape from the ultimates of the weather —spring, summer, autumn and winter. Some would add that there is a Trinity from which we cannot escape—father, mother and child—the three-in-one which must ever be the unit of the race—four times three make twelve.

The number of the sons of Jacob was twelve. The tribes of Israel were twelve. Around the Tabernacle in the Wilderness, the twelve tribes were encamped in four groups of three, and on the heart of the High Priest lay the breastplate with twelve precious stones on which the names of the tribes were indelibly engraven.

A year of twelve months is thus the year that man, in all eras of his history, has tried to perfect. In any narrative of the calendar, no other year than this is of significance. After patient experience, man realized what was essential and what was merely accidental to that year. Despite all delays and blunders and absurdities, man has never doubted that a perfect year was worth whatever trouble might be involved.

# RECENT CALENDAR RESEARCH

## *Clocks and Calendars*

*By* Mrs. E. A. Stockwell

IN the complex life of this modern age, our clocks and calendars have become quite the most important of all our lares and penates. We literally live and move and have our being through their aid and guidance. Our first thought on awaking each morning is of the hour of day, and our second thought is of the day of the week.

For centuries now the civilized world has used the Gregorian Calendar, which is quite the most perfect instrument of its kind that man has yet invented. Slight improvements are now proposed to make it still more perfect, without altering its fundamental merits and adequacies. The main problem, of course, is to coordinate the days of the week and month.

To those who are internationally minded, it is heartening and noteworthy to observe the progress that calendar reform has made during the past few years. The movement for a revised calendar is world-wide in scope, and efficient agencies are working toward it in Europe, Asia, North America and South America.

In the proposed World Calendar, the nations will unify as well as improve the calendars of the entire world. The achievement of this aim is a great step forward in international cooperation that will result in better understanding and good-will. It is the greatest step of this kind since the world-wide agitation that preceded the establishment of the International Postal Union—which was the first important project between all the nations.

Retention of the 12-month year makes the transition to the new calendar comparatively easy and simple. The adoption of The World Calendar would seem to be inevitable.

## *Women's Activities*

*By* Margaret Becker Kulp

Sec'y, Women's Council for Calendar Reform

AMERICAN women have lately shown an increasing interest in proposals for revision of the Gregorian Calendar. Membership in the Women's Council for Calendar Reform now includes committees in 30 states. Among the leaders of these groups are representatives of the General Federation of Women's Clubs, the American Association of University Women, the League of Women Voters, the National Educational Association, the League of American Pen Women, the Congress of Parents and Teachers and the Daughters of the American Revolution. The National Story League passed a resolution at its latest meeting advocating The World Calendar.

More and more is the subject of calendar reform becoming a favorite for club programs. Several state and county federations are making intensive studies of calendar reform through committees or groups, and the reports of these groups naturally become the basis for study programs in their subsidiary clubs.

Women are naturally interested, not only in the social aspects of calendar reform, but also in the romantic and poetic background of our time-reckoning system.

"I have given two lectures on this subject recently," says a letter which has just come to me from a Nebraska club leader. "One was before a forum of teachers, young married folk and young business women. This audience was keenly interested, and took part later in an animated discussion of various phases of the subject. My second talk was before a Rotary Club, which paid me the compliment of rapt attention, and paid The World Calendar plan the compliment of complete and unanimous endorsement."

## *Sane and Simple*

*By* George M. Thomson

WHAT splendid visions does the phrase "a fixed calendar" summon! Visions of a regularized, rationalized, standardized time-world, in which human reason will have triumphed over the brute facts of human prejudice and historical precedent, in which the shape of things to come will have lost half its terror since we shall always be sure that whatever happens the succession of the days will be the same.

Is such a sane and simple reform at last within our grasp? We deal here with in-

tractable material, liable to defy even the reformer's zeal.

What is the difficulty? Why is it that civilized man hesitates to adopt a reform for which common sense overwhelmingly argues?

Calendar reform attempts to bring regularity into something which is in its essential nature irregular. It is very difficult to provide a neat, even, symmetrical year. Millions of people are now suffering under a changeable system of time computation. The best solution, or at least amelioration, of their difficulties is found in the plan proposed by the League of Nations, a proposal to equalize the four quarters of the year so that each contains three months of 31, 30 and 30 days respectively, and to take the 365th day of the year and set it apart from the rest of the calendar, making it a "Year Day" standing between the old and new years.

Under this calendar every year's calendar would be exactly alike. The advantages are obvious, on the grounds of business convenience, order in economic relations, and certain social benefits, such as the fact that public holidays would always fall on suitable days.

## *Romance of Almanacs*

*By* Dr. A. S. W. Rosenbach
New York Bibliophile

IN the American colonies during the latter half of the seventeenth century and throughout the eighteenth, there were more almanacs published than all other books combined. Often a man's entire library consisted of a single almanac, which he carried with him in his pocket.

New England had no newspapers in these early days, and the only way the settler could determine holidays, fairs, church meetings and sittings of the courts was by consulting almanacs. These were frequently interleaved by their owners, who then used them as diaries and memorandum books, jotting down from day to day any event which interested them, or making a note of anything they wished to remember.

These almanac diaries are invaluable and interesting today because they reveal to us, in their interleaved pages, a glimpse of the intimate life and actual happenings in the first American homes. Sometimes they are our only source of information.

From the middle of the seventeenth century on, the presses of New England were kept busy turning out almanacs. I believe there were hundreds of thousands of them issued before 1700. Yet strange to say, not more than three or four hundred are in existence today. The greatest collections belong to the Massachusetts Historical Society, The Library of Congress, the New York Public Library, and to the American Antiquarian Society in Worcester.

Who were responsible for the material in these almanacs? Not "spoiled" astronomers, but men of substance whose names counted for something more in colonial life than a doubtful ability to visualize the future.

The earliest known almanac printed in the great city of New York was Bradford's issue for the year 1694, of which two imperfect copies exist. But the earliest one by a New York author survives in a single example. It was edited by John Clapp and published in 1697. Clapp kept a house of entertainment "about two miles without the City of New York at the place called the Bowry."

It was not exactly news to state that the most famous almanacs in America—in fact, the best known in the entire world—were those issued by Franklin in Philadelphia between 1733 and 1766. Franklin took part in drawing up the Declaration of Independence, the Articles of Confederation and the Constitution of the United States, but I think he was more proud of his almanacs than of his great historical achievements. They were quoted throughout the colonies, and translated into many languages. In England they were mentioned in the same breath with the works of Addison and Steele, and in France, "*La science du Bonhomme Richard*" was a topic of conversation in the great salons of that period. These Poor Richard almanacs were better known abroad than any other example of American literature.

Of the almanacs issued from Franklin's press, beginning in 1733 and ending in 1766, no complete set exists. One of the best is that presented by the Curtis Publishing Company to the library of the University of Pennsylvania. Down to 1758 Franklin wrote every almanac himself, adding enough spice to each issue to insure a constant sale.

# EXCERPTS AND REVIEWS

## *Educational Aspects*

(From *World Education,* official organ of the World Federation of Education Associations; Prof. Paul Monroe, President; Prof. Uel W. Lamkin, Secretary-General)

THERE is perhaps no single class of persons more plagued with the irregularities of the calendar than those who are connected with schools and colleges. The making of a school calendar is full of difficulties complicated with the eccentric incidence of the holidays, and the impossibility of making Christmas and Easter vacations fall efficiently into the school year. All difficulties are repeated year after year because the whole business must be done over again every time school opens.

The main purpose of calendar reform is to remove the wandering character of the week days so that a given day of any month, say March 1, will always come on the same week day. This is about all that calendar reform plans to accomplish and it is a simple matter which would cause no trouble to anyone. As for educators, it would result immediately in a stabilization of the school calendar. Last year's school calendar would be used for this year and for every succeeding year.

The World Calendar is a revision of the present calendar to correct its inequalities and discrepancies. It rearranges the length of the 12 months so that they are regular, making the year divisible into equal halves and quarters in a "perpetual" calendar. Every year, semester and quarter are identical.

In this new calendar each quarter contains exactly 3 months, 13 weeks, 91 days. Each quarter begins on Sunday and ends on Saturday. The first month in each quarter has 31 days, and the other two 30 days each. Every month has 26 week-days. In order to make the calendar perpetual, identical for every year, while retaining astronomical accuracy, the 365th day of the year, called Year-End Day, is an intercalary day placed between December 30 and January 1 and considered an extra Saturday.

The extra 366th day in leap years, called Leap-Year Day, is intercalated between June 30th and July first. The intercalary or stabilizing days are tabulated as December Y and June L, and would probably be observed as international holidays. January first, New Year's Day, always falls on Sunday.

The World Calendar is balanced in structure, perpetual in form, harmonious in arrangement. It conforms to the solar year of 365.2422 days and to the natural seasons. Besides its advantages in economy and efficiency, it facilitates statistical comparisons, co-ordinates the different time-periods, stabilizes religious and civil holidays. As compared with other proposals for calendar revision, it offers an adjustment in which the transition from the old to the new order can be made without disturbance.

The international advantages of The World Calendar are obvious. Eastern Europe, which has clung to the old Julian calendar for more than 350 years, desires the reform. India, with its 17 different calendars, Japan, the Moslem nations would certainly co-operate in a general adoption of the new calendar. The movement for revision has already enlisted peoples, churches, and governments everywhere. A reform would certainly make for international union and understanding.

## *An Ingenious Calendar*

(From the *Shoe and Leather Record,* London)

IN VIEW of the necessity of getting many countries to agree together, the matter of calendar reform and Easter stabilization is a very difficult one to deal with. There is no question that a fixed Easter would be of considerable benefit to England. The view seems now to be generally held that there is a better prospect of securing agreement to a fixed Easter if it is a part of a general simplification of the calendar.

Lord Desborough, H. G. Wells, the Astronomer Royal and the Dean of St. Paul's Cathedral are among those who have expressed themselves in favor of a reform of the calendar on the lines advocated by The World Calendar Association. This plan, known in England as the Desborough plan, embodies a per-

petual year of 12 months with four equal quarters. The first month of each quarter would contain 31 days, and all the others 30 days. The 365th day of the year would bear a distinctive name and would be placed in the calendar as a second Saturday. By this simple device, every year would begin on a Sunday, and the same dates in different years would always fall on the same weekday.

One of the advantages of this fixed year is that monthly and quarterly statistics could be more accurately compared than is possible under the present system.

International reform of the calendar on the lines suggested has been brought within the range of practical politics by the recent action of the International Labor Conference, which asked the League of Nations to "resume" its study of calendar reform, and drew particular attention to the equal-quarter plan. The Conference's resolution will come before the Council of the League of Nations shortly and will be referred to the relevant committee with a view to bringing the new calendar into operation on January 1, 1939.

## *All Years Alike*

(From the Spokane *Spokesman Review*)

BECAUSE the number 365 isn't divisible by 7 or by 12, the ancients didn't know how to make up a really efficient calendar. As our present calendar stands divided, the second half of the year is three days longer than the first half; the third and fourth quarters are each two days longer than the first quarter; and some of the months are three days longer than is February.

Moreover, the year isn't twice the same —successive Februarys are not the same. The number of Sundays and the number of work days in a given month vary from year to year. All this makes nearly impossible a rational comparison of costs, earnings, profits and other useful statistics and necessitates much arithmetic that enters into the cost of living, as well as consumes our potential leisure and our potential hours of productivity.

If the year were symmetrically divided, you and I and the dairyman, banker, teacher, merchant and manufacturer would not need to search for a calendar each time a contract is dated, or a mortgage drawn up; when bank interest is calculated, or a court hearing set, or school attendance averaged; when a factory's output or a store's turnover is to be averaged and compared from month to month; when a payroll's monthly total or a workman's per diem earnings for the month must be anticipated; when a dairy herd's milk yield, or a poultry flock's lay is to be checked upon in the study of profits and loss; when a restaurateur's required food stocks or a work crew's needed materials are estimated.

What is a month, if not a unit of measure? And if it is rational to have 28 days in one month, but 31 in the next, why not a week that varies in length from six days to eight? If one February shall have 28 days and the next 29 days, why not measure distance and dry goods with a linear foot that varies, being 11 inches long on Mondays, but 12 on Tuesdays?

Several plans have been proposed to better balance our calendar and to make it as much alike from year to year as the recurrence of leap year permits. Several plans went before the League of Nations for study and for reference to a committee from each member nation, which committees were to present the question of concerted calendar revision to their respective governments and peoples. Then the world depression struck and as several nations' currencies crashed problems so grave arose that this one was brushed aside for a time.

Among those various designs for calendar revision was a drastic one advocating a 13-month year and one left-over day. Its sole advantage appears to be that the months would be uniformly 28 days long. But a 13-month year would not divide into halves and quarters consisting of entire months.

Far more advantageous, in the opinion of many, is the plan advocated by The World Calendar Association and known as The World Calendar.

The excellence of this plan is that it would be always the same, would be simple to remember and would bring about a maximum of symmetry with a minimum of change from our present plan.

In this unvarying calendar, any holiday falling always on one certain week day—such as Thanksgiving day, Labor day and Election day—would occur also on one unvarying date in the month.

# CURRENT PRESS COMMENT

## London Chamber Support

*London Times*

The Council of the London Chamber of Commerce has sent to the Prime Minister, the Secretary of State for Home Affairs, and to His Holiness the Pope a resolution which was unanimously adopted at its meeting last week. This resolution says: "That the London Chamber of Commerce, which, after many years of advocacy, saw the Easter Act put on the Statute Book in 1928, is convinced that the fixing of the date of Easter, which would confer great benefits upon trade and commerce generally, can best be made effective as part of a general reform of the calendar.

"The inefficiency of the present system is obvious when it is realized that the same quarters are not comparable for statistical purposes from year to year owing to the varying number of working days in them.

"The London Chamber of Commerce therefore urges H. M. Government to use its influence at the Conference to be held in the autumn under the auspices of the League of Nations, to secure the adoption into equal quarters of 91 days, with New Year's Day undated, and a fixed Easter."

Lord Desborough has undertaken to represent the Chamber's views at the League Conference.

## Chile's Leadership

*Tampa (Fla.) Times*

Chilean proposals for calendar reform have been approved by the International Labor Office at Geneva. The movement has been approved and a committee has been designated to carry it on.

Senor Gajardo Reyes deserves congratulations on this event, since the action in Geneva is the result of his initiative, leadership and enthusiasm.

## Growing Awareness

*Ardmore (Pa.) Times*

Everywhere there is a growing awareness of the inadequacy of the present calendar. People who must deal with accurate calculations, forward-planning or the programming of important engagements find their work complicated by the annoying irregularities and confusing changes of our exceedingly antiquated calendar. The hardships of an outmoded measuring system become increasingly clear in a world made smaller by swifter communications. The inequalities of the calendar are matters which call for adjustment.

## Serious Attention

*Tampa (Fla.) Times*

Whatever one thinks of perennial agitation for calendar reform, it cannot be denied that the latest proposals for a uniform world calendar are receiving serious attention from American groups and individuals of high standing.

The World Calendar Association's proposal of a 12-month equal-quarter (91 days) year has been approved by five national scientific bodies, including the American Association for the Advancement of Science, and the American Philosophical Society.

## Veteran Leader

*Toronto Mail and Empire*

Lord Desborough's interest in calendar reform dates back prior to the World War, when he participated in the beginnings of the movement. He followed its early development in Switzerland and Germany. Then, after the war, he saw it reappear and he sought to enlist British support in Parliament as early as 1920 and 1921. The progress which has been made is indicated by the complete support given to Lord Desborough in the recent House of Lords debate by the Archbishop of Canterbury. No qualifications accompanied the Primate's official utterance.

## Near Realization

*Frankfort Oderzeitung*

Feasibility of a reform of the calendar through the League of Nations is now near realization. Through this reform, stabilization would be obtained in all countries and by all faiths. Replies to a definite questionnaire have been received by the League of Nations and studied. On the whole they are favorable.

# JOURNAL OF CALENDAR REFORM

EDITORS

CHARLES D. MORRIS CHARLES C. SUTTER

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ELISABETH ACHELIS, *President*

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OUTSTANDING activities in calendar reform during the year 1936 have brought the movement much nearer its goal. There is every reason to look forward with confidence that the proposal for a new calendar will be brought to the final stage of enactment during 1937.

The first draft of the proposed international treaty, by which calendar reform will be consummated, has been laid before the League of Nations. Consideration of the preliminary steps toward such a treaty will presumably be a part of the program at the meeting of the League's Council during the early months of the year.

Meanwhile, throughout the year, governments have been drawing closer together on the subject. In England, a government spokesman has declared in Parliament that the subject will have "the most sympathetic and serious consideration of the representatives of His Majesty's Government." The London Chamber of Commerce has declared its strong advocacy of calendar reform in a resolution endorsing the perpetual 12-month revision of equal quarters, which has been reinforced by similar resolutions coming from the Federation of British Chambers of Commerce and culminating in the Congress of Empire Chambers recently held in New Zealand.

In Germany, a new committee for the promotion of calendar reform is being formed by the Minister of the Interior, with full governmental approval; and in France, Senator Godart is taking the leadership in the movement in an effort to keep his country abreast with other powers in the advocacy of this much-needed reform. The favored plan is The World Calendar.

In the United States, the endorsement of the Central Statistical Board, which represents technical men in charge of statistical work in various governmental departments, has approved calendar reform and urged an international convention. This action prepares the way for the President to use his great power and influence for setting in motion American cooperation in favor of the reform.

International approval of the movement has also come within the year from labor and the churches. Labor's desire to see prompt action was voiced first by the Labor Conference of American States, at Santiago, Chile, which unanimously endorsed The World Calendar. This was followed by a strong resolution passed unanimously at the congress of the International Labor Office in Geneva in June.

In the religious field, the international organization of non-Roman churches, the Universal Christian Council for Life and Work, completed a four-year study of calendar reform and declared its verdict in favor of calendar reform, a stabilized Easter and the 12-month equal-quarter plan of revision. The clergy of the Roman Catholic Church have shown a constantly increasing interest in, and sympathy with, the aims of calendar reform, and the latter part of 1936 has seen the publication, under the imprimatur of the Church, of the most important book on calendar reform yet issued by the European press—the Abbé Chauve-Bertrand's *La Question de Pâques et du Calendrier,* which fully approves of The World Calendar.

# FROM THE MAILBAG

I am very much in sympathy with other members of the Chamber of Commerce in regard to obtaining a reform in the calendar. I am sure that it would help greatly in comparisons in cost accounting in industrial companies. I also think that it would make it possible to rearrange national holidays so that they would fall on week-ends, which would result in a great advantage.—Cleveland E. Dodge, New York, N. Y.

It will give me a good deal of pleasure to familiarize myself with this movement with which I have sympathy.—Rev. W. C. Covert, Philadelphia (Moderator Presbyterian Church).

I am glad to note that such good progress is being made among the large scientific societies of America.—Harlow Shapley, Harvard Observatory, Cambridge.

In my position as Manager of the Portland Depository of the Methodist Book Concern, I have had an opportunity to converse with a great many ministers, as well as laymen, regarding calendar reform. I have found sentiment nearly unanimous for The World Calendar.—J. J. Brauer, Mgr., Methodist Book Concern, Portland, Ore.

I am much impressed by the simplicity of the adjustments required to make a calendar of 12 months with equal quarters.—Prof. R. F. Foerster, Princeton, N.J.

Calendar reform is an urgent need. Where such reform affects the work of the Church, the various national conventions should express themselves. Governments should then enact legislation in best interests of all.—Rev. G. Wickey, Exec. Secy., Lutheran Board of Education, Washington, D. C.

I certainly hope the new calendar can be put into use very soon. I also hope that the revisionists will all try to assist The World Calendar and not waste their efforts debating various types among themselves. Let us take The World Calendar and "put it across."—F. Bolton, Librarian, Yale Univ.

Your calendar is sound, practical and worthy of adoption.—G. A. Gibson, Mining Executive, Bisbee, Ariz.

The 12-month calendar offers the greatest possibilities for a united Christendom. Leadership in this important achievement is clearly the duty of the church.—Rev. E. V. Kuhns, Pueblo, Colo.

I feel that much would be gained by the adoption of The World Calendar and can see no serious objection to it.—R. C. Wallace, Pres. University of Alberta, Edmonton, Canada.

It seems to me that it is an entirely practical proposition and that after a very little while everybody would become so accustomed to it that men would wonder why for so long a time the world was willing to be subjected to the inconvenience caused by the calendar as it is.—Rt. Rev. A. S. Lloyd, Suffragan Bishop of N. Y.

I should like The World Calendar to begin January 1st, 1939.—K. S. Klingenberg, Director of Norges Geografiske Opmaling, Oslo, Norway.

Your suggested 12 months calendar is a vast improvement over present one.—W. E. Champlin, Contractor, Phila.

I am using the JOURNAL to keep our faculty and student body informed on the subject.—H. B. Robison, Culver-Stockton College, Canton, Mo.

Sons of Norway, District Lodge No. 1, in convention assembled, voted to join The World Calendar Association. — A. A. Andersen, Secretary, Minneapolis, Minn.

I favor the 12-month equal-quarter plan and think the Church should take the initiative in calendar reform.—Rt. Rev. E. C. Seaman, Bishop of North Texas.

The Ohio Chamber of Commerce is in favor of a world conference to discuss this matter.—G. B. Chandler, Secy., Ohio Chamber of Commerce, Columbus, O.

The subject is one of wide interest.—T. C. Woo, Secy.-Gen., Ministry of Education, Nanking, China.

The World Calendar of 12 months is a step in advance.—Morgan H. Grace, Exporter, New York.

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BOLIVIA: Comite Boliviano del Calendario Mundial, Don Moises Santivanez, Chairman, Biblioteca Nacional, Sucre.

BRAZIL: Comite Brasilero del Calendario Mundial, Captain Radler de Aquino, Chairman, Rua Raul Pompeia No. 133, Rio de Janeiro.

CANADA: Rational Calendar Association, Lt. Col. J. Murray Muir, Secy., Room 218, 2 College St., Toronto 5.

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COSTA RICA: Comite Costarricense del Calendario Mundial (Iqualmente de Guatemala, Honduras, San Salvador y Nicaragua), Don Teodoro Picado, Chairman, Ministro de Educacion Publica, San Jose.

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FRANCE: Bureau d'Etudes pour la Reforme du Calendrier, Paul Louis Hervier, Secy., 5 Rue Bernoulli, Paris.

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